VEKLER, R.A.; [illegible]

Geological and chemical characteristics of Noril'sk coals.
Trudy NIIGA 123:117-140 '61. (MIRA 14:10)
(Noril'sk region—Coal—Analysis)

VENER, R.A., red.; SPERANSKAYA, G.V., red.; AKOPOV, M.G., red.; KOSTIN, N.A., red.; MIRONOVA, T.A., ved. red.

[Preparation and complete utilization of fuel] Obogashchenie i kompleksnoe ispol'zovanie topliva. Moskva, Nedra, 1965. 255 p. (MIRA 18:6)

1. Moscow. Institut goryuchikh iskopayemykh.

KARAVAYEV, N.M.; VENER, K.A.; GRIGOR'YEVA, K.V.

Water soluble acids from the oxidized coals of a permafrost zone.
Dokl. AN SSSR 161 no.5:1197-1200 Ap '65. (MIRA 18:5)

1. Institut goryuchikh iskopayemykh, Moskva.

VENER, R.A.

Methods of determining the activity of carbonaceous argillites. (MIRA 13:12)
Trudy IGI 14:136-142 '60.
(Argillite) (Activity coefficients)

VENER, R.A.

Chemical composition of mineral resins. Trudy IGI 21: 99-108 '63. (MIRA 16:11)

ASUIS, A.; GUTMAN, L.; VENERAKI, B.

Electric arc-welding of trolley-bus steering knuckles. Zhil.-kom. khoz. 6 no.1:27 '56. (MLRA 9:5)
(Trolley buses)(Electric welding)

VENGRAKI, I. E.

Dissertation: "Investigation of Some Rules of the Heat-Emission Process in Boiling Under Conditions of Free Circulation." Cand Tech Sci, Inst of Heat Engineering, Acad Sci Ukrainian SSR, Kiev, 1953. Referativnyy Zhurnal--Khimiya, Moscow, No 13, Jul 54.

SO: SUM No. 356, 25 Jan 1955

VENERAKI, I. E. (Cand. Tech. Sci.)

Heat Transfer of a Horizontal Bundle of Tubes to Boiling Water and Sugar Solution under Conditions of Free Convection and Vacuum.

report presented at sci and tech session on Heat Exchange during Change of Aggregate State of matter (by Comm. on High Steam Conditions, Power Inst. AS USSR, and Inst. Thermal Engineering, AS UkrSSR) Kiev, 23-28 Sep 57.

Kiev Polytech Inst.

[illegible], [illegible]; [illegible]REV, V.[illegible]; [illegible], [illegible]; [illegible]

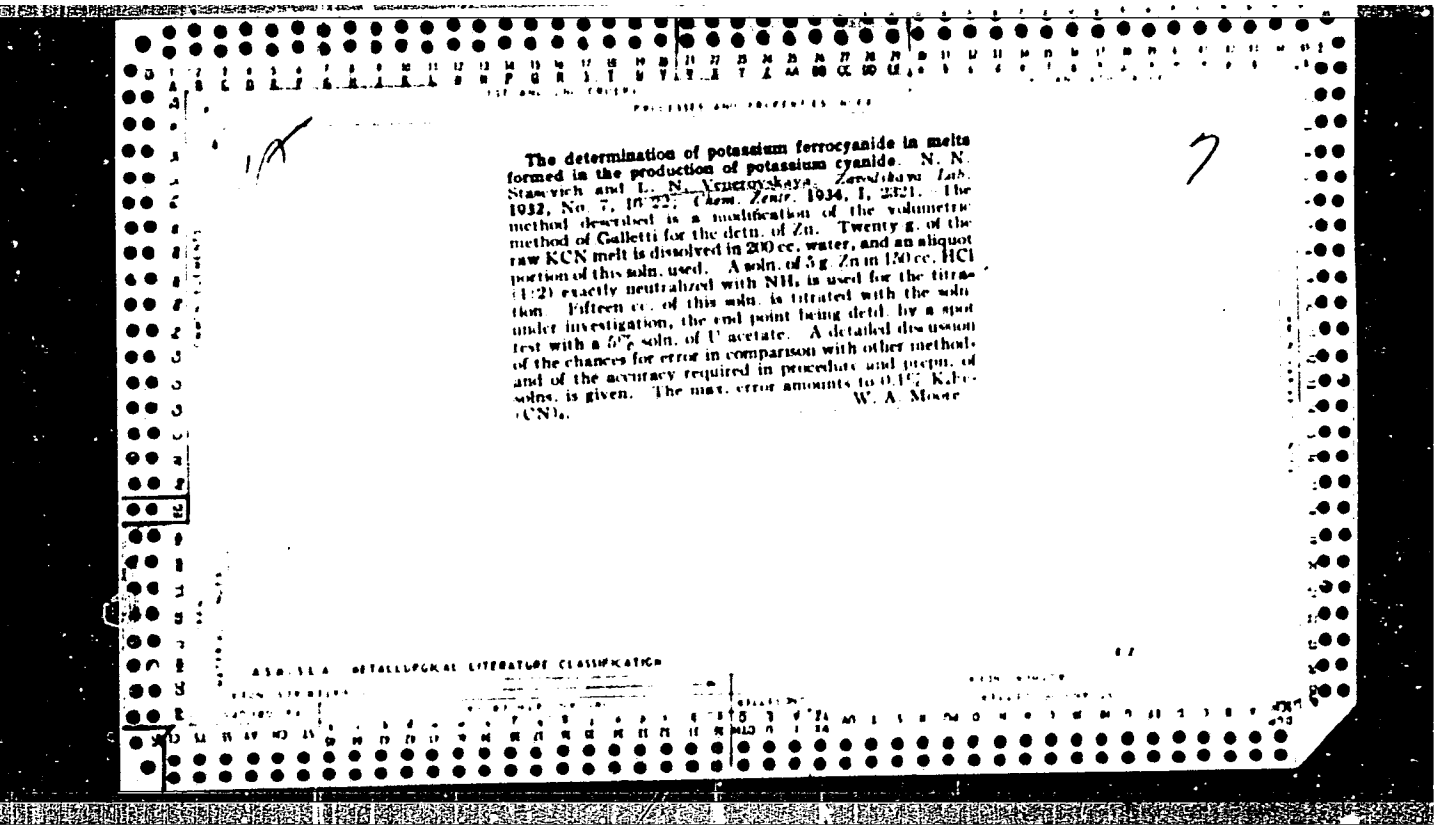
Studying heat-transfer processes in the [illegible] of [illegible]ene glycol water solvents. Kham. prom. [illegible] no.[illegible] '63 ([illegible])

VENERAKI, I.E.; BOLOTIN, N.K.

Experimental determination of heat in the steam generation of diethylene glycol. Gaz. prom. 9 no.3:30-32 '64. (MIRA 17:9)

KRAL', Karel [Kral, Karel]; VENEROVA, Kv'yeta [Venerova, Kveta]; PETROV, Vladimir; YURIN, B.A., red.

[Concise encyclopedia of the international trade-union movement] Kratkaia entsiklopediia mezhdunarodnogo profsoiuznogo dvizheniia. Moskva, Profizdat, 1963. 208 p. Translated from the Czech. (MIRA 17:3)



The determination of potassium ferrocyanide in melts formed in the production of potassium cyanide. N. N. Stanevich and L. N. Yemetovskaya. *Zavodskaya Lab.* 1932, No. 7, 10-22; *Chem. Zentr.* 1934, I, 2321. The method described is a modification of the volumetric method of Galletti for the detn. of Zn. Twenty g. of the raw KCN melt is dissolved in 200 cc. water, and an aliquot portion of this soln. used. A soln. of 5 g. Zn in 150 cc. HCl (1:2) exactly neutralized with NH_4 is used for the titration. Fifteen cc. of this soln. is titrated with the soln. under investigation, the end point being detd. by a spot test with a 5% soln. of U acetate. A detailed discussion of the chances for error in comparison with other methods and of the accuracy required in procedure and prepn. of solns. is given. The max. error amounts to 0.1%. K hexacyanoferrate, $K_4Fe(CN)_6$.

W. A. Moore

PROTSENKO, P.I.; VENEROVSKAYA, L.N. (g.Rostov-na-Donu)

Experiment in obtaining nitrogen trioxide. Khim.v shkole 14 no.4:40-41 Jl-Ag '59. (MIRA 12:11)
(Nitrogen oxide) (Chemistry--Study and teaching)

ACCESSION NR:

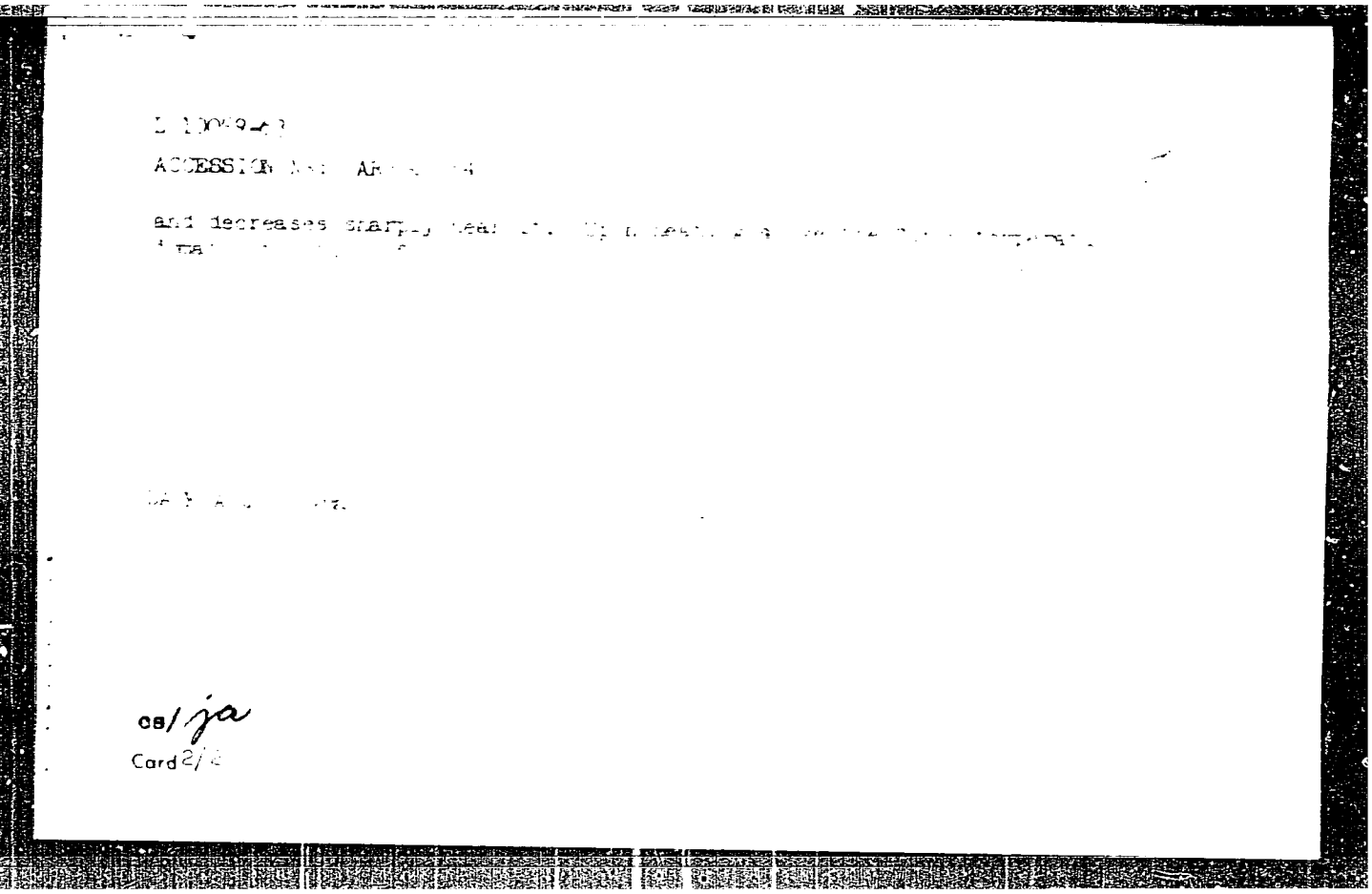
SOURCE:

AUTHOR: Protsenko, P. I.; Khodakov A. A.; Mirskaya Ye. Z.; Venerovskaya, [illegible]

TITLE: Physico-chemical parameters of nitrates and nitrates of alkali and alkali-earth metals with ferroelectri properties.

TOPIC TAGS: Ferroelectrics, nitrates and nitrites, alkali metals, [illegible] metals

Card



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Card 2/4

S/196/63/000/001/006/035
E193/E383

AUTHORS: Protsenko, P.I., Khodakov, A.A., Mirskaya, Ye.Z. and Venerovskaya, L.N.

TITLE: Physicochemical parameters of nitrites and nitrates of alkali and alkaline-earth metals with ferroelectric properties

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no. 1, 1963, 17, abstract 1 B55. (In collection: Segnetoelektriki (Ferroelectrics), Rostov-na-Donu, Rostovsk. un-t, 1961, 21-26)

TEXT: In connection with the possible application of ferroelectrics as nonlinear elements in conjunction with electroluminophors, it is desirable to have available ferroelectrics characterized by low ε, this property being necessary to ensure their compatibility with electroluminophors. With this in view, a study was conducted of crystals of those nitrites and nitrates of alkali and alkaline-earth metals that possess ferroelectric properties; the experimental specimens were crystallized out of aqueous solutions or grown by the Bridgman method from their melts. Thermal

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Physicochemical parameters ....

analysis of a large number of nitrates and nitrites enabled the authors to obtain more accurate data on their melting points, to establish the existence of polymorphic transformations and to determine the transformation temperatures (these data being reported in the form of a table). It was shown that single crystals of sodium nitrite ($NaNO_2$) in the direction of the β axis consituted ferroelectrics with $\Theta \sim 437$ °K, i.e. 164 °C (see Fig. 1), the magnitude of ε at Θ being more than 100 times higher than that at room temperature. The magnitude of spontaneous polarization, determined by pyroelectrical measurements, was found to be about 7 μk/cm. Typical hysteresis loops were observed at 413 °K (140 °C) at 50 c.p.s. High values of coercive fields at room temperature were established. A study of the dependence of ε of $NaNO_2$ on temperature and the intensity of the DC field E showed that ε decreased with increasing E at temperatures lower than Θ, being independent of E at Θ. Dilatometric measurements showed that the temperature coefficient of linear expansion α of $NaNO_2$ was of the order of 10^{-4} - 4 x 10^{-5} deg^{-1}, and that the temperature-dependence of α differed from that typical for ferroelectrics. A

Physicochemical parameters ....

domain structure was observed which disappeared at temperatures higher than θ and was not restored on cooling below θ. Single crystals of sodium, rubidium, caesium and thallium nitrates had phase-transformations in the temperature range between room temperature and the melting point. The transformation of sodium nitrate from the second phase (with an orthorhombic structure of aragonite) to the first phase (with the calcite structure) took place on heating above 403 °K (130 °C); on cooling below 397 °K (124 °C) the first phase changed into ferroelectric third phase, which remained stable down to 383 °K (110 °C) and then changed to the second phase. The transformation of sodium nitrate to its ferroelectric phase was accompanied by a decrease in ε. Transformation from hexagonal to cubic modification took place at 434 °K (161 °C) in rubidium nitrate, a change from cubic to rhombic modification taking place at 492 °K (219 °C); a phase-transformation in this compound was observed also at 564 °K (291 °C). Rubidium nitrate had no ferroelectric properties in the temperature interval studied. A phase-transformation took place in caesium nitrate at 427 °K (154 °C) but no maxima were observed near the transformation temperature. Two phase-transformations were observed in thallium nitrate (see

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PROTSENKO, P.I.; PROTSENKO, A.V.; TRET'YAKOV, Yu.D.; VENEROVSKAYA, L.N.

Electric conductance of binary molten nitrite-nitrate systems. Dokl. AN SSSR 154 no.5:1171-1174 F'64. (MIRA 17:2)

1. Rostovskiy-na-Donu gosudarstvennyy universitet. Predstavleno akademikom A.N. Frumkinym.

PROTSENKO, P.I.; BORDYUSHKOVA, V.A.; VENEROVSKAYA, L.N.

Differential thermographic analysis with recording of the conductance of alkali metal nitrites. Ukr. khim. zhur. 31 no. 11: 1200-1203 '65 (MIRA 19:1)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

VENEROVSKIY, D.N.

Traveling-wave tube with a secondary emission multiplier. Zhur. tekh. fiz. 28 no.5:1089-1095 My '58. (MIRA 11:6)
(Electron tubes)

VENEROVSKIY, D.N.; PURTO, V.M.

Excitation of millimicrosecond pulses by means of oscillator traveling-wave tubes. Radiotekh. i elektron. 3 no.11: 1404-1405 N '58. (MIRA 11:11)
(Traveling-wave tubes)

SOV/109-3-11-11/13

AUTHORS: Venerovskiy, D.N. and Purto, V.M.

TITLE: On the Problem of Generation of Millimicrosecond Pulses By Means of Travelling Wave Tubes (K voprosu vozbuzhdeniya nanosekundnykh impul'sov pri pomoshchi generatornoy LBV)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 11, pp 1404 - 1405 (USSR)

ABSTRACT: The possibility of generating very short pulses by means of travelling wave tubes with an internal feedback is indirectly indicated by the experimental data contained in a number of published works (Refs 2,3,4). From those data, it can be concluded that it is possible to generate oscillations of various types and that to each type of oscillation corresponds a definite interval of the accelerating potential. The possibility of obtaining a milli-microsecond pulse is indicated in the graph of Figure 1 which gives the wavelength as a function of the accelerating voltage; if the voltage is changed stepwise to a value higher than V_2 , the tube will oscillate during

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On the Problem of Generation of Milli-microsecond Pulses by Means of Travelling Wave Tubes

an interval Δt .

There are 2 figures and 6 references, 2 of which are Soviet, 2 English, 1 French and 1 German.

SUBMITTED: November 27, 1957

AUTHOR: Venerovskiy, D. N. 57-28-5-30/36

TITLE: On a Travelling-Wave Tube With a Secondary-Emission Multiplier (O lampe begushchey volny s vtorichnoelektronnym umnozhitelem)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 1089-1095 (USSR)

ABSTRACT: In this paper the author attempted to find a possibility for the creation of a tube which permits the simultaneous performance of several processes: Amplification of the low-frequency signal, generation of the carrier frequency and the modulation of the carrier frequency by the low-frequency signals. The lay-out of the tube employed for the preliminary experiments, is shown by figure 3. In order to arrive at a transition of the electron current from the multiplying part of the tube, where the interaction of the electron beam with the slowed-down electromagnetic wave takes place, a construction of an electron-optical focussing transition system was worked out. The shape of the electrodes and the potentials were found by the investigation of the electric fields in the electrolytic bath. The picture of the field and the trajectories of the electrons are shown in figure 4. This system

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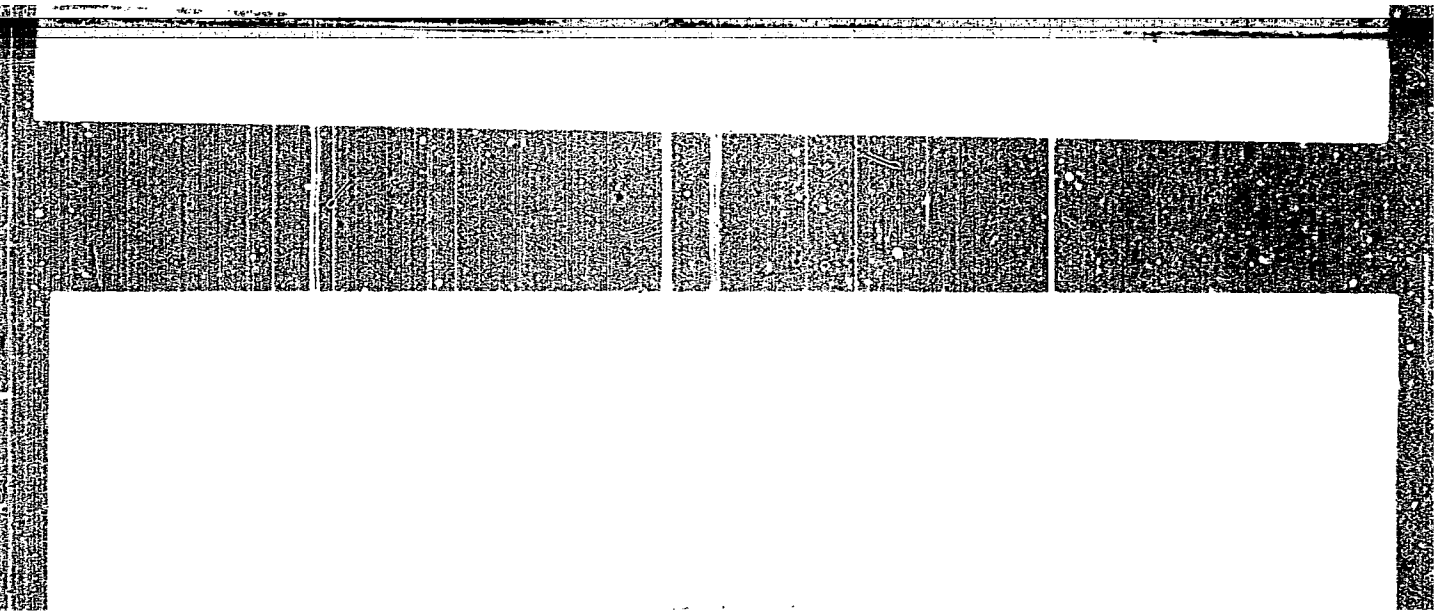
proved to be sufficient for the experimental examination of the principle. The problem of the finding of a rational solution for the electron-optical transition system calls for a special investigation. The basic interest is centered on the experimental control of the system as such. The results of the present investigation permit to draw the following conclusions: 1) The function $I_d = f(i_1)$ (figure 7) indicates a linear relation between the amplitude of the excited electromagnetic field and the amperage of the electron beam, at a variation of from 0,5 to 1,2 milliamperes, because the shape of the curve $I_d = f(i_1)$ corresponds to the current-voltage characteristic of a detector. 2)The absence of a noticeable distortion of the propagation P- impulse certifies, that the rise time of the oscillation amplitude in a travelling-wave tube does not exceed 10^{-6} sec at a sudden variation of the beam. 3) The possible modification of the generated wave length does not exceed measurement errors by more than 5% at an increase of the beam current by a factor of three. For this reason the experimental examination of the amplitude modulation in this tube by means of P-impulses within a few

tenths of a microsecond with a travelling frequency of up to some dozen MC seems to be of great interest. An investigation of the functions $I_{d.} = f(i_{1.})$ in a wider range of variations of the beam current is also necessary. The author thanks Professor V. I. Kalinin for the interest shown by him.
There are 12 figures and 9 references, 8 of which are Soviet.

SUBMITTED: April 2o, 1957

1. Traveling wave tubes--Design



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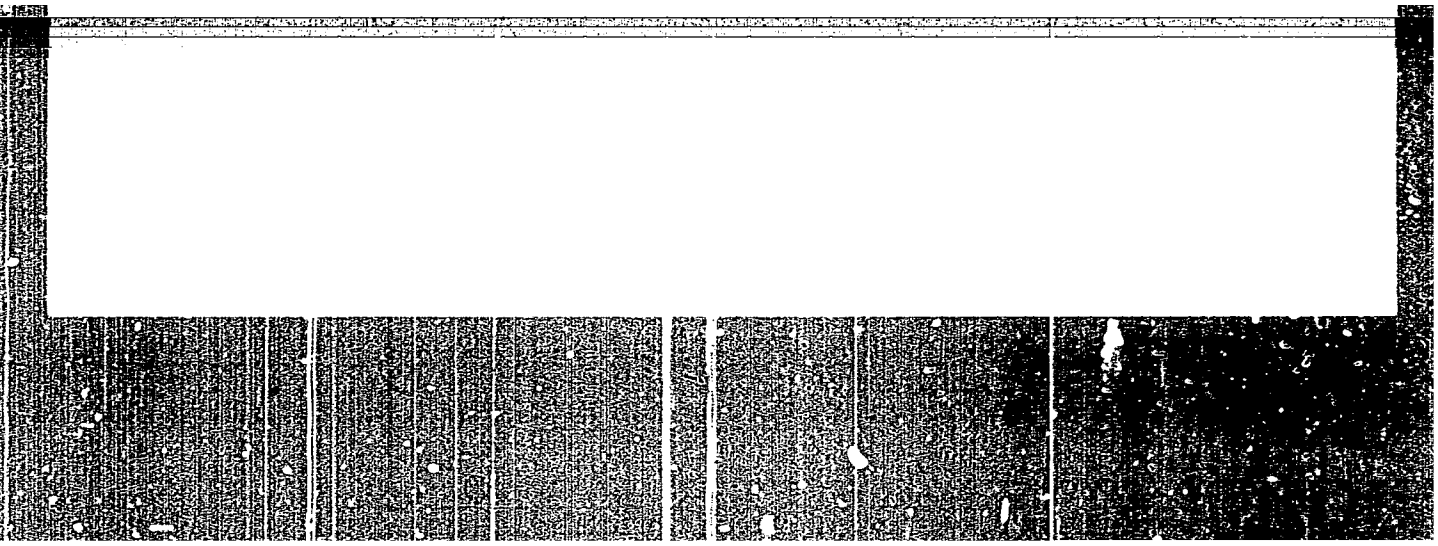

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859410006-7"

VENEROVSKIY, D. N., and MIKHALEVSKIY, V. S.

"The Generation of Electromagnetic Oscillations by Means of a Traveling Wave Tube With an External Sectionalized Helix," by V. S. Mikhalevskiy and D. N. Venerovskiy, Zhurnal Tekhnicheskoy Fiziki, Vol 26, No 3, Mar 56, pp 526-529

In this experimental study the electromagnetic waves were retarded by a "helical filter" consisting of a sectionalized helical conductor, as suggested by W. Dodds and R. Peter (RCA Review, 14, 502 [1953]). It was established that the sectionalizing of the helix contributes to the stability of the generated wave length over a wide range of variations in anode voltage and magnetic field strength. Tables and graphs protray the results of the experiments.

Sum 1239

MIKHALEVSKIY, V.S.; VENEROVSKIY, D.N.

Generation of electromagnetic oscillations by means of travelling-wave tubes having internal sectional spiral grids. Zhur.tekh.fiz. 26 no.3:526-529 Mr '56. (MLRA 9:7)
(Oscillators, Electron-tube)

VENEROVSKIY, D. N. and MIKHALEVSKIY, V. S.

"Electromagnetic Oscillations in a Traveling-Wave Tube with an External Sectional Helix," Zhur. tekh. fiz., 26, No.3, pp. 526-29, 1956

Translation 1032974

MIKHALEVSKIY, V.S.; VEKSLEROVSKIY, D.N.

Generation of electromagnetic oscillations by means of a moving-wave external-spiral electron tube. Zhur. tekh. fiz. 25 no.5:812-816 My '55. (MIRA 8:7)

(Electric waves) (Electron tubes)

VENETIANER, P.

Newer technic for treatment of traumatic defects of the skin and for healing of chronic varicose ulcers of the leg. Orv.hetil. 91 no.17:528 23 Ap '50. (CLML 19:2)

1. First Surgical Department of the Polyclinic of the 9th District Office of the National Institute for Social Insurance, Mester Street, Budapest.

VENETIANER, L.

"Crain bridges latticed on one side with a box girder." p. 102

GEP. (Gepipari Tudomanyos Egesulet) Budapest, Hungary, Vol. 11, No. 3
Mar. 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 6, June 1959
Uncl.

VENETIANER, L.

VENETIANER, L. Measurement of crane bridges with caisson girders. P. 217.

Vol. 7, No. 6, June 1955.
GEP.
TECHNOLOGY
Budapest, Hungary

So: East European Accession, Vol. 5, No. 5, May 1956

VENETIANER P.

Ujabb eljaras traumas borhiany es regi alsszarfekely begyogyitasaria.
[Newer technic for treatment of traumatic defects of the skin and for healing of chronic varicose ulcers of the leg]
Orv. hetil. 91:17 23 Apr 50 p. 528.

First Surgical Department of the Polyclinic of the 9th District Office of the National Institute for Social Insurance, Master Street, Budapest.

VENETIANER, P.; STRAUB, F.B.

Enzymic formation of the disulfide bridges of ribonuclease.
Acta physiol. acad. sci. Hung. 24 no.1:41-53 '63.

1. Institute of Medical Chemistry, Medical University, Budapest.
(PANCREATIC EXTRACTS) (RIBONUCLEASE)
(PROTEIN METABOLISM) (CHROMATOGRAPHY)
(BIOCHEMISTRY) (CATTLE) (SULFIDES)

STRAUB, F.Bruno, akademikus, egyetemi tanar; CSUZI, Sandor, egyetemi tanarseged; VENETIANER, Pal, egyetemi tanarseged

The 5th International Congress on Biochemistry in Moscow. Magy tud 68 no.12:765-766 D '61.

1. Magyar Tudomanyos Akademia Biokemiai Intezete, Budapest (for Straub). 2. Budapesti Orvostudomanyi Egyetem (for Csuzi and Venetianer).

VENETIANER, Pal

Perspectives of international cooperation in biology. Biol oszt kozl MTA 6 no.3/4:359-363 '63.

1. Budapesti Orvostudomanyi Egyetem Orvosi Vegytani Intezete.

HUNGARY

VENETIANER, Pal, STRAUB, Ferenc, Bruno; Medical University of Budapest, Institute of Medical Chemistry (Budapesti Orvostudomanyi Egyetem, Orvosi Vegytani Intezet).

"Enzymatic Formation of the Disulfide Bridges of Ribonuclease."

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol XXIV, No 1, 1963, pages 41-53.

Abstract: [English article, authors' English summary] An enzyme has been found in the pancreas of several animal species which is able to catalyze the reactivation of reduced bovine pancreatic ribonuclease. The enzyme has been partially purified from chicken and pig pancreas. A heat-stable factor was essential to the activity of the enzyme. This substance could be replaced by dehydroascorbic acid. The possible significance of these results in the problem of protein biosynthesis is discussed. 1 Chinese, 23 Western references.

1/1

KRAUSE, E.-G.; VENETIANER, P.; STRAUB, F.B.

On the nature of the oxidizing factor involved in the enzymic reactivation of reduced ribonuclease. Acta physiol. acad. sci. Hung. 27 no.4:295-301 '65.

1. Institute of Medical Chemistry, University Medical School, Budapest.

VENETIANER, P.; STRAUB, F.B.

Studies of the mechanism of action of the ribonuclease-reactivating enzyme. Acta physiol. acad. sci. Hung. 27 no.4:303-315 '65.

1. Institute of Medical Chemistry, University Medical School, Budapest.

VENETS, P.Kh., mashinist elektrovoza

Electric locomotive engineer P. Kh. Venets shares his experience.
Elek. i tepl. tiaga 2 no.8:39-40 Ag '58. (MIRA 11:9)

1.Depo Nikopol', Stalinskaya doroga.
(Electric locomotives)

VENETSIANOV, [illegible]vgeniy Andreyevi[illegible]h; [illegible], [illegible].A., [illegible]. red.; [illegible]ASUNINA, N.A., red.

[Installation of electri[illegible]al wiring and electrical equipment in premises with explosion hazards] Montazh elektroprovodok i elektrooborudovaniia vo vzryvoopasnykh pomeshcheniiakh. Moskva, [illegible], 19[illegible]4. 139 p. (MIRA 17:9)

VENETSIANOV, Yevgeniy Andreyevich; DELIBASH, B.A., red.; LARIONOV, G.Ye., tekhn. red.

[Special features of the installation of explosion-proof electrical equipment] Osobennosti montazha vzryvozashchishchennogo elektrooborudovaniia. Moskva, Gosenergoizdat, 1963. 62 p. (Biblioteka elektromontera, no.102) (MIRA 17:1)

RAKOVICH, I.I.; VENETSIANOV, Ye.A.; NAYFEL'D, M.R.; MOVSESOV, N.S.; BOL'SHAM, Ya.M.

Problem concerning the use of cable fittings and wires with aluminum strands in class V-Ia areas with explosion hazard conditions. Prom. energ. 15 no.8:38-44 Ag '60. (MIRA 15:1)

1. Gosudarstvennyy institut azotnoy promyshlennosti (for Rakovich). 2. Vsesoyuznyy trest po elektrifikatsii promyshlennykh predpriyatiy tsentral'nykh rayonov SSSR (for Venetsianov, Nayfel'd). 3. Glavnoye upravleniye po proizvodstvu elektromontazhnykh rabot Minstroya RSFSR (for Mozsesov). 4. Gosudarstvennyy proyektnyy institut tyazheloy elektricheskoy promyshlennosti (for Bol'sham).

(Electric wiring--Safety measures)

LIPKIN, B.Yu.. Prinimali uchastiye: GOL'DGOF, B.G., inzh.; BARYBIN, Yu.G., inzh.; VORONKOV, Yu.F., inzh.; VENETSIANOV, Ye.A., inzh., SOKOLOV, D.V., inzh., nauchnyy red.; KROMOSHCH, I.L., red.izd-va; GORDEYEV, P.A., red.izd-va; HUDAKOVA, N.I., tekhn.red.

[Electric equipment at industrial enterprises] Elektrooborudovanie promyshlennykh predpriiatii. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 399 p. (MIRA 13:7)

(Electric driving)

DOBRYNIN, Valentin Ksenofontovich; VENETSIANOV, Ye.A., inzh., nauchn. red.

[Installation of heavy bus conductors in electrolytic cells and electric furnaces] Montazh tiazheloi oshinovki elektroliznykh vann i elektricheskikh pechei. Moskva, Stroiizdat, 1965. 167 p. (MIRA 18:4)

BOGDANOV, K.D.; DELIBASH, B.A.; VENETSIANOV, Ye.A.; GUREYEV, V.A.; ZHIVOV, M.S.; ZEVAKIN, A.I.; MAYFEL'D, M.R.; NEYMAN, Kh.G.; KUZNETSOV, [illegible].P.; RIZOVATOV, A.V.; RUBINSHTEYN, Ya.A.; TRIFONOV, A.N.; TRUNKOVSKIY, L.Ye.; KHROMCHENO, G.Ye.

[Organization and performance of electrical equipment installation operations] Organizatsiia i proizvodstvo elektromontazhnykh rabot. Moskva, Stroiizdat, 1964. 602 p. (MIRA 18:3)

L 9246-66 EWT(l)/EWP(e)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG/GG/WH
ACC NR: AP5022740 SOURCE CODE: UR/0181/65/007/009/2853/2856

AUTHOR: Ageyev, A. N.; Venetskaya, M. M.; Zablotskiy, G. A.; Myl'nikova, I. Ye.; Pisarev, R. V.; Proskuryakov, O. B.

ORG: Institute of Semiconductors AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

TITLE: Investigation of ferrite-garnet single crystals with vanadium

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2853-2856

TOPIC TAGS: single crystal, vanadium, garnet, ferrite, absorption spectrum

ABSTRACT: Some data are given from preliminary studies on single crystals of garnets which contain vanadium ions. Specimens of $(Bi_{3-2x}Ca_{2x})[Fe_2](Fe_{3-x}V_x)O_{12}$ single crystals were grown, using Bi_2O_3, Fe_2O_3, V_2O_5 and $CaCO_3$ as initial components. The best crystals were those with $x = 1.33$ and dimensions of 5-7 mm. Measurements of magnetization from room temperature to the Curie point show that the composition of the synthesized crystals corresponds to that of the initial charge. Curves are given for $2\Delta H$ as a function of temperature along crystallographic axes [111], [110] and [100] in plane (110) for a garnet crystal with $x = 1.33$. Spectral studies of thin plates (about 5 μ) show an absorption maximum at about 0.87 μ and a second weaker maximum at about 0.69 μ, with transparency in the visible and infrared regions. The

Card 1/2

L 9246-66

ACC NR: AP5022740

authors are grateful to G. A. Smolenskiy and A. G. Gurevich for directing the work.
Orig. art. has: 2 figures, 1 table.

SUB CODE: 20,07/ SUBM DATE: 09Apr65/ ORIG REF: 002/ OTH REF: 007

Card 2/2

L 10759-66 EWT(1) I,P(c) GG

ACC NR: AP5027720 SOURCE CODE: UR/0181/65/007/009/2763/2767

AUTHOR: Tomashpol'skiy, Yu. Ya.; Venevtsev, Yu. N.; Beznozdrev, V. N.

ORG: Physicochemical Scientific Research Institute im. L. Ya. Karpov, Moscow (Nauchno-issledovatel'skiy fiziko-khimicheskiy institut)

TITLE: Ferromagnetism in ferromagnetic-ferroelectric systems

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2763-2767

TOPIC TAGS: ferroelectric material, ferromagnetic material, ferromagnetism, alloy phase diagram, solid solution, phase transition

ABSTRACT: The $PbTiO_3$-$Sr_{0.3}La_{0.7}MnO_3$ system is used as a basis for studying the feasibility of producing ferromagnetics in the form of solid solutions in a ferroelectric-ferromagnetic system. The specimens were prepared by sintering MnO_2, TiO_2, $PbCO_3$ and $SrCO_3$ at 850-1350°C for [illegible] hours. X-ray diffraction patterns were taken and the dielectric constant, magnetic susceptibility, spontaneous magnetic moment and conductivity were measured. X-ray analysis at room temperature shows that this system forms a continuous series of solid solutions of the perovskite type. Phase transitions occur at 30 and 70% $PbTiO_3$. The experimental data indicate that the solid solutions from 70 to 100 mol % $PbTiO_3$ may have ferroelectric properties in a definite temperature range. Curves for the dielectric constant as a function of temperature

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in this system show maxima which indicate phase transitions from the paraelectric to the ferroelectric state. Curves for inverse magnetic susceptibility and spontaneous magnetic moment as functions of temperature show that the point of the magnetic phase transition decreases with an increase in the lead titanate concentration. Extrapolation shows that the transition point lies close to absolute zero at 95 mol % $PbTiO_3$. The phase diagram for the system shows that the ferroelectric transition point falls more rapidly than that for magnetic phase transition. Thus the system keeps its ferromagnetic properties in the 0-92 mol % range, while ferroelectric properties occur in compositions with 70-100 mol % $PbTiO_3$. The system displays both ferroelectric and ferromagnetic properties in the interval between 70 and 92% lead titanate at lower-than-room temperatures. The method proposed in this paper may be used for producing materials with various combinations of ferro- and antiferroelectric with ferro-, ferri- and antiferromagnetic properties. The authors thank V. P. Glushkova and A. M. Abramova for making the chemical analyses. Orig. art. has: 5 figures.

SUB CODE: 20,11/ SUBM DATE: 09Apr65/ ORIG REF: 002/ OTH REF: 004

HW

L 7763-66 EWT(l)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/GG
ACC NR: AP5025403 SOURCE CODE: UR/0181/65/007/010/3126/3128

AUTHOR: Tomashpol'skiy, Yu. Ya.; Venevtsev, Yu. N.

ORG: Physicochemical Scientific Research Institute im. L. Ya. Karpov, Moscow (Nauchno-issledovatel'skiy fiziko-khimicheskiy institut)

TITLE: Ferromagnetism in the Pb_2CoWO_6-$BaTiO_3$ system

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3126-3128

TOPIC TAGS: lead compound, cobalt compound, tungstate, barium titanate, solid solution, phase transition, phase diagram, ferromagnetism, polycrystal

ABSTRACT: The authors study polycrystalline specimens in the Pb_2CoWO_6-$BaTiO_3$ system produced by sintering oxides and carbonates. Cr radiation was used for the x-ray analysis. The dielectric constant was studied as a function of temperature at 200 kc in a weak field with an accuracy of 5-10%. The magnetic susceptibility and spontaneous magnetic moment were measured. X-ray analysis shows only the cubic modification of the perovskite cell for 5-95% $BaTiO_3$ concentrations. Superstructure lines due to ordering on the Pb_2CoWO_6 side are observed on the x-ray photographs to approximately 25 mol. % $BaTiO_3$, although partial ordering is apparently maintained to even higher concentrations (~40 mol. % $BaTiO_3$). Curves for the dielectric constant as a function of temperature show maxima which are characteristic for ferro- or antiferroelectrics at compositions close to the initial compounds. These maxima move toward the low

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L 7763-66

ACC NR: AP5025403

temperature side starting with small concentrations of $BaTiO_3$ in Pb_2CoWO_6 and vice versa. No extrema were observed on $\varepsilon(T)$ curves for compositions of 20-80 mol.% $BaTiO_3$. This is apparently due to a shift in the point for ferro- or antiferroelectric transitions toward the low temperature side. Specimens with 5 mol.% $BaTiO_3$ were used for the magnetic measurements. The curve for magnetic susceptibility as a function of temperature has a shape which is typical of ferrimagnetic materials with a poorly defined inflection at about -70°C. The phase diagram of the system shows that the antiferroelectric Curie point for Pb_2CoWO_6 and the ferroelectric Curie point for $BaTiO_3$ fall sharply in the low temperature region and lie in the temperature range below -(160-180°C) at concentrations of 15 and 85 mol.% $BaTiO_3$. Ferromagnetic solid solutions were observed in a certain region on the Pb_2CoWO_6 side with a combination of antiferroelectric and ferrimagnetic properties due to partial ordering of Co ions. An anomaly was observed in the curve for $\varepsilon(T)$ near the ferrimagnetic phase transition. This phenomenon may be due to the interrelationship between electric and magnetic dipoles. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 11May65/ ORIG REF: 007/ OTH REF: 000

Card 2/2

L 12096-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JT

ACC NR: AP6000531 SOURCE CODE: UR/0070/65/010/006/0862/0868

AUTHOR: Viskov, A.S.; Venevtsev, Yu.N.; Zhdanov, G.S.; Onikiyenko, L.D.

ORG: Physics-Chemistry Institute im. L. Ya. Karpov (Fiziko-khimicheskiy institut)

TITLE: The study of new lead-containing perovskites

SOURCE: Kristallografiya, v. 10, no. 6, 1965, 862-868

TOPIC TAGS: perovskite mineral, x-ray diffraction analysis, ferroelectric material, antiferroelectricity, mineralogy, mineral, inorganic chemistry

ABSTRACT: The authors reported earlier (Dokl. AN SSSR, 158, 1, 86, 1964) on the synthesis of a large number of new lead-containing perovskites. The present article describes the production conditions, methods for x-ray and dielectric studies, and the results of such studies carried out on samples with a starting composition of $Pb(La_{1/3}^{3+}B_{1/3}^{3+}W_{1/3}^{6+})O_3$, where $B^{3+} \equiv Fe$, La; $Pb(B_{1/4}^{2+}Mn_{1/4}^{4+}B_{1/2}^{5+})O_3$, where B^{2+} = Co, Ni, Zn, Mg, and Cd, B^{5+} = Mb, Ta, and W. In addition, magnetic measurements were carried out in the -170 to 350 - 400C temperature range for samples with compositions $Pb(B_{1/4}^{2+}Mn_{1/4}^{4+}Nb_{1/2}^{5+})O_3$, where B^{2+} = Co and Ni, and $Pb(B_{1/4}^{2+}Mn_{1/4}^{4+}W_{1/2}^{5+})O_3$

UDC: 548.736:537.226.1

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where B^{2+} = Co, Ni, and Mg. All synthesized samples had the perovskite-type structure and exhibited either ferroelectric or antiferroelectric dielectric properties. Some of them, such as $Pb(B_{1/4}^{2+}Mn_{1/4}^{4+}Nb_{1/2}^{5+})O_3$ with B^{2+} = Co and Ni, and $Pb(Ni_{1/4}^{2+}Mn_{1/4}^{4+}Ta_{1/2}^{5+})O_3$ exhibit, in addition, ferromagnetic properties. The authors thank Yu. Ye. Roginskaya for valuable advice during the discussion of magnetic properties. Orig. art. has: 2 figures and 1 table.

SUB CODE: 07, 11 / SUBM DATE: 16Oct64 / ORIG REF: 007 / OTH REF: 001

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859410006-7"

L 12102-66 EWT(1) IJP(c) IHB/GG

ACC NR: AP6000532 SOURCE CODE: UR/0070/65/010/006/0869/0874

AUTHOR: Shapiro, Z.I.; Fedulov, S.A.; Venevtsev, Yu. N.; Rigerman, L.G.

ORG: All-Union Scientific-Research Institute of Chemical Reagents and Very Pure Chemical Substances (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistikh khimicheskikh veshchestv)

TITLE: The study of phase transitions in $LiNbO_3$ and $LiTaO_3$ compounds

SOURCE: Kristallografiya, v. 10, no. 6, 1965, 869-874

TOPIC TAGS: lithium compound, ferroelectric material, phase transition

ABSTRACT: Although B.T. Mattias and J.P. Remeika (Phys. Rev. 76, 1886, 1949) discovered in 1949 that $LiTaO_3$ and $LiNbO_3$ exhibit unique dielectric properties, these dielectric properties and the nature of polymorphic transitions of the compounds have not yet been thoroughly studied. Consequently, the authors studied within a 0 - 1000C temperature range the structure (using x-ray diffraction) and electrical properties (i.e. bridge) of these compounds. A brief description of the sample preparation and experimental methodology is followed by a presentation (in the form of graphs) of x-ray, dielectric, and conductivity data. The article concludes with a brief discussion of the results. The $LiTaO_3$ compound contains a ferroelectric transition at 630C, whereas $LiNbO_3$ is, apparently, a "frozen" ferroelectric. The authors express their thanks to V.S. Kharitonov for his help during the investigation.

Card 1/2 UDC: 548.736:536.42

L 12102-66

ACC NR: AP6006532

Orig. art. has: 4 figures.

SUB CODE: 11, 20 / SUBM DATE: 14Dec64 / ORIG REF: 006 / OTH REF: 006

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L 7820-66 EWT(1)/EPA(s)-2/EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) DIAAP/IJP(c)

ACC NR: AP[illegible]28113 SOURCE CODE: [illegible]

AUTHOR: Mitrofanov, K.P.; Viskov, A.S.; Plotnikova, M.V.; Venevtsev, Yu.N.; Shpinel', V.S.

ORG: none

TITLE: Resonance absorption of gamma rays and internal fields in bismuth ferrite - strontium stanno-manganite system ferroelectric-antiferromagnetic solid solutions /Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-18 September 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2029-2033

TOPIC TAGS: ferroelectric material, antiferromagnetic material, solid solution bismuth, ferrite, manganese, tin, strontium, Mossbauer effect, chemical bonding, magnetic field, Curie point, Neel temperature

ABSTRACT: The magnetic field strength at the positions of the Fe and Sn ions in $BiFeO_3 - Sr(SnMn_2)_{1/3}O_3$ solid solutions was investigated with the aid of the Mössbauer effect. The powdered solid solutions, enriched in Sn^{119} and Fe^{57}, were prepared from polycrystalline materials by the usual double air heating ceramic technique. It was [illegible] [illegible] magnetic properties, the ferroelectric Curie point and the Neel point decrease with increasing manganite content and are below room temperature when the manganite con-

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859410006-7"

L 7820-66

ACC NR: AP5028113

centration is greater than 37 and 55 mole %, respectively. The resonance absorption of Fe^{57m} and Sn^{119m} γ rays by solid solutions containing 100, 90, 70, and 50 mole per- [illegible] $BiFeO_3$ was investigated at temperatures from 77 to 850°K; the experimental tech- [illegible] (Pribory i tekhnika eksperimenta, No. 3, [illegible]). At the Neel point the iron absorption line was nearly resolved into six components, which are ascribed to Zeeman splitting. At the Neel point the iron absorption line was a doublet with a separation of 0.4 mm/sec; this splitting is ascribed to quadrupole interaction. The tin absorption was broadened but not resolved into separate components. This broadening is ascribed to superposition of many Zeeman patterns with different splitting, and effective magnetic fields were derived from the absorption contours. The magnetic field at the iron nuclei decreased with increasing temperature and vanished at the Neel point, which was found to be 650 ± 3°K for pure $BiFeO_3$; the magnetic field extrapolated to 0°K was close to 500 kOe and decreased only slightly in the presence of manganite. The effective magnetic field at the tin nuclei, extrapolated to 0°K, increased with increasing $BiFeO_3$ concentration; it was about 300 kOe for large $BiFeO_3$ concentrations and extrapolated to zero at a $BiFeO_3$ concentration of 27 mole %. The significance of the results is discussed briefly. It is known that the field at the iron nucleus is due mainly to the influence of the electron shell of the iron ion, and it is said to be obvious that the effective magnetic field at the tin nucleus is proportional to the magnitude of the indirect exchange interaction due to polarization of the electron shell of the diamagnetic ion. The tin absorption line

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ACC NR: AP5028113

was not displaced with respect to the SnO_2 source. This shows that the Sn-O bonds in the solutions are highly (65-70%) [illegible] measurements at 540 K on samples containing [illegible] 70 mole % $BiFeO_3$ showed that the isomeric shift and [illegible] of ionization of the tin remained unchanged on transition from the para[illegible] to the ferro-electric state. This result casts doubt on the hypothesis of H.D.Megaw (Acta Crystallogr., 5, 739 (1952); 7, 187 (1954)) that the bond character changes at a ferroelectric transition. It is concluded that the Mössbauer effect provides a useful tool for the investigation of internal fields and bond characters in ferroelectric and ferromagnetic materials. Orig. art. has: 3 figures.

SUB CODE: SS,EM,NP SUBM DATE: 00/ ORIG. REF: 008 OTH REF: 004

Card 3/3

SHVORNEVA, L.I.; VENEVTSEV, Yu.N.

Perovskites with ferromagnetic properties. Zhur.eksp.i teor.fiz. 49 no.4:1038-1041 O '65. (MIRA 18:11)

1. Fiziko-khimicheskiy institut imeni Karpova.

VENETSKIY, I.; VOLKOV, A.

"Wars and the population of Europe" by B.TS.Urlanis. Reviewed by I.Venetskii, A.Volkov. Vop. ekon. no.4:118-121 Ap '62. (MIRA 15:4)

(War--Casualties (Statistics, etc.))
(Urlanis, B.TS.)

VENETSKIY, Il'ya Grigor'yevich; KIL'DISHEV, Grigoriy Semenovich; BOYARSKIY, A.Ya., nauchnyy red.; PREVEZENTSEVA, A.G., red.; IL'YUSHENKOVA, T.P., tekhn. red.

[Basic principles of mathematical statistics] Osnovy matematicheskoi statistiki. Moskva, Gosstatizdat, 1963. 307 p. (MIRA 16:6)

(Mathematical statistics)

VEYTSMAN, N.R., prof.; VENETSKIY, I.G., dots.; ZHUKOV, F.N., dots.; MUKHIN, A.F., dots.; YEPIFANOV, M.P., red.; YERKHOVA, Ye.A., tekhn. red.

[Principles of studying balance sheets and statistics]Osnovy balansovedeniia i statistiki; uchebnoe posobie. Pod red. N.R.Veitsmana. Moskva, Izd-vo IMO, 1962. 261 p. (MIRA 15:12)

(Accounting) (Statistics)

VENETSKIY, S.

Niobium, the 41st chemical element. Metallurg 10 no.8:38-39 Ag '65. (MIRA 18:8)

VENETSKIY, S.

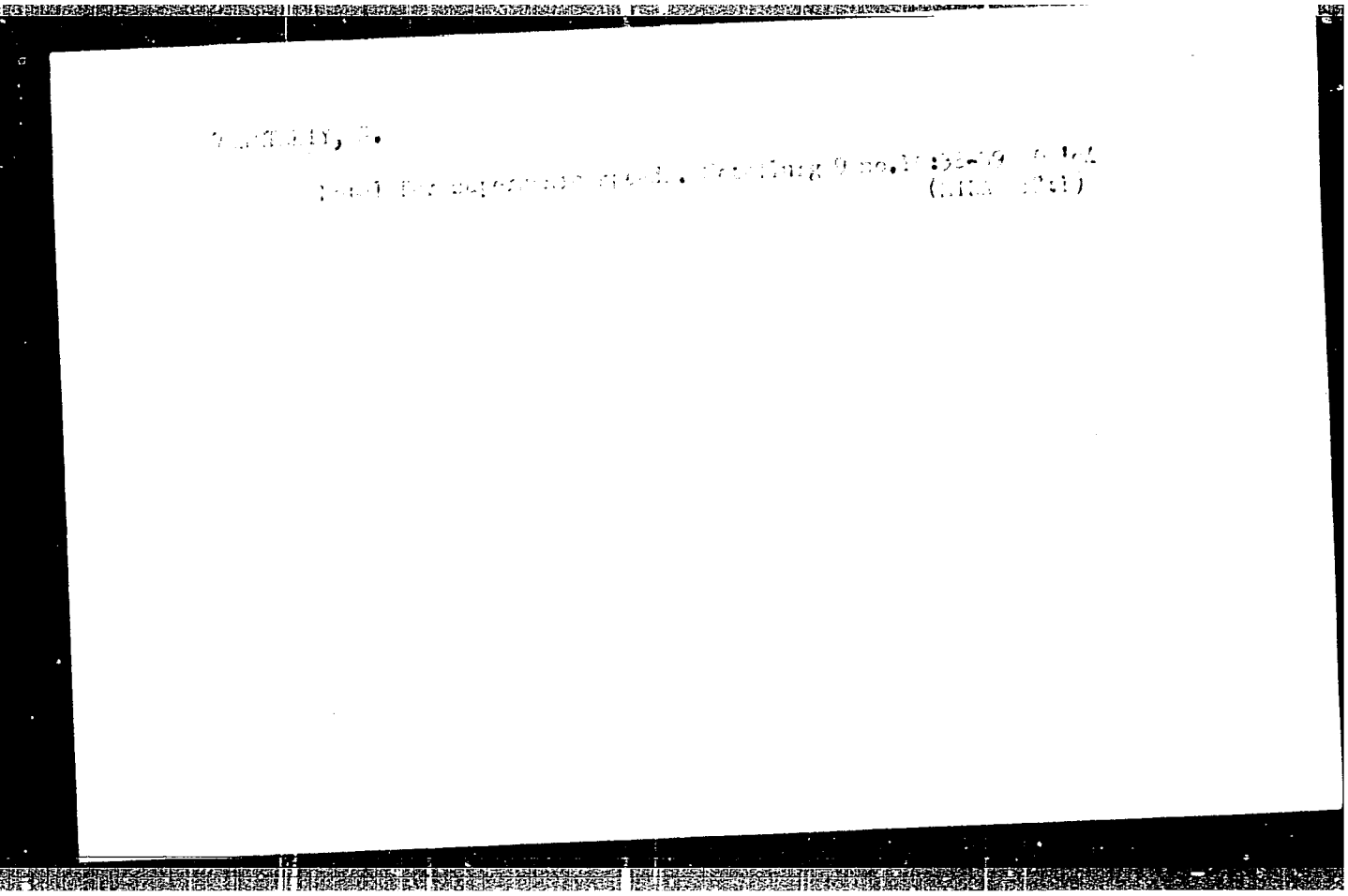
Light-giving metal. Metallurg 10 no.8:38-39 Ag '64. (MIRA 17:11)

VENETSKIY, S.

"Clothing" of uranium cores. Metallurg 10 no.4:38-39 Ap '65. (MIRA 18:7)

VENETSKIY, S.

Vitamin metal. Metallurg 9 no.6:36-37 Je '64. (MIRA 17:9)



EDNERAL, Fedor Prokop'yevich, prof., doktor tekhn. nauk; KHITRIK, S.I., prof., doktor tekhn. nauk, retsenzent; CHUYKO, N.M., prof., doktor tekhn. nauk, retsenzent; KHOLODOV, A.I., dots., kand. tekhn. nauk, retsenzent; VENETSKIY, S.I., inzh., red.; KARASEV, A.I., tekhn. red.

[Electrometallurgy of steel and ferroalloys] Elektrometallurgiia stali i ferrosplavov. Izd.3., ispr. i dop. Moskva, Metallurgizdat, 1963. 640 p. (MIRA 16:8)
(Steel—Electrometallurgy)
(Iron alloys—Electrometallurgy)

ROZENTSVEYG, Yan Davydovich; SHVEDOV, Lev Vladimirovich; VENETSKIY, Sergey Iosifovich; PLINER, Yu.L., kand. tekhn. nauk, retsenzent; RYSS, M.A., inzh., red.

[Brief handbook on the manufacture of ferroalloys (for workers)] Kratkii spravochnik ferrosplavshchika (dlia rabochikh). Moskva, Izd-vo "Metallurgiia," 1964. 343 p. (MIRA 17:5)

LYUBIMOV, V.N.; VENETTSEV, Yu.N.

Calculation of potentials in superstructures. Fiz. tver. tela 4 no.5:1352-1357 My '62. (MIRA 15:5)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva.
(Crystal lattices)

VENEV, Ivan; STOIANOV, Kol'o; DIMITROV, Vl.

Results of control fattening of different lines and families of pigs in the Georgi Dimitrov State Farm. Selskostop nauka 2 no.8:993-999 '63

VENEV, I.

(18)

(138)

Sofia, Zhivotnovudstvo, Vol 15, No 4, April 1952

1. "An Improved Type of Tent for Drying Alfalfa," Ivanka DOBREVA, Junior Scientific Collaborator at the regional livestock scientific research institute in Stara Zagora; pp 2-4.

2. "Our Experience with Preserving Green Alfalfa with Sodium Metabisulfide," Ivan DIKOV, Chairman of the "Road to Communism" Cooperative Farm in Isperikh; pp 5-8.

3. "For the Correct Distribution and Consolidation of Fodder Production in the Cooperative Farms," Zhivko TANIISS STRASHILOV, Junior Scientific Collaborator, (Central Agricultural Scientific Research Institute); pp 9-14.

4. "The Influence of the Age of Hogs for Breeding Purposes on Some of Their Productive Characteristics," Ivan VENEV (Senior Assistant, "G. Dimitrov" Agricultural Statistical Institute) and Vladimir DIMKOV (Senior Zoologist, "G. Dimitrov" State Farm); pp 15-17.

5. "Combined Mechanization of the Poultry Pen in the Village of Malomirovo, Yambol Okrug," Stefan MILANOV, Chief Zoologist at the "V.I. Lenin" Cooperative Farm; pp 18-22.

6. "Many Paths Lead to Cheap Production," Stelka ILIEVA, Poultry Keeper at the cooperative farm in the village of Dropla (Tolbukhin okrug), holder of the order of the Red Banner of Labor, and people's representative, as told to G. GEORGIEV; pp 23-25.

7. "The Daily Productivity of Danubian and Draft Horses in the Cultivation of Agricultural Crops," Ivan YORDOV, Junior Scientific Collaborator, Livestock Scientific Research Institute, Kostinbrod Kray; pp 26-29.

8. "Feeding as a Factor in Breeding," Professor Petko IVANOV; pp 30-34.

9. "Our Experience with Breed Improvement," Petur GEORGIEV, Director of the breed improvement station in Gyaur Station; pp 35-39.

10. "The Artificial Insemination of Cows with Sperm

— 1/2 —

VERGILOV, V.; VENEVA, R.

Diabasic rocks from the boring at the village of Khitrino, Kolarovgrad District. Izv Geol inst BAN 8:271-283 '60. (EEAI 10:5)
(Bulgaria--Diabase)

VINEVA-BOYDUROVA, Tsv.

Comparative studies on the immunogenic properties of the alcohol, acetone, and formol vaccines against Salmonella cholerae suis var. Kunzendorf. Izv Vet Inst zarazn parazit 9:89-99 '63

SOV/128-59-4-18/27

18(5)
AUTHOR: Dan'kov, I.N. and Venevskiy, Ye.N., Engineers

TITLE: Overheating Cupola Iron for Side-Blown Bessemer Converter

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 4, p 38 (USSR)

ABSTRACT: When converting physically or chemically cold cast iron by the Bessemer process, the oxydation of the admixture may be hampered or even prevented entirely. Therefore, ferro-silicon was added in the converter to heat the cast iron. The authors of the article carried out tests, in which they used super-heated cast iron with a low percentage of silicon to activate the Bessemer process. The iron was melted in a cupola with a diameter of 1,000 mm. The cupola had three rows of tuyeres, an air consumption of 140 m^3 per minute, and the pressure in the twyer box was equivalent to a water column 750 mm high. The chemical and physical heat of a portion of the waste gases was utilized for the super-heating. The gases were reburned in the transition channel and in the fore-

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Overheating Cupola Iron for Side-Blown Bessemer Converter

hearth and left the cupola through the slag hole, which remained open during the melting. The diameter of the transition channel was enlarged. In addition, compressed air was brought into the channel. Most of the waste gases were burned in the forehearth, which lifted the requirements in regard to the quality of the fireproof casing in forehearth and tap hole. For melting the pigiron the charge had the following composition: 27% cast iron, 67% steel srap, and 6% ferrosilicon. As a result of the physical preheating of the cast iron, the oxydation of the admixtures and especially of the carbon began 2 or 3 minutes after the blast was admitted into the converter. The oxydation could be recognized by a bright blue flame. During the converting process no additions of iron alloys were made. The duration of the process was reduced to 10-12 minutes. There is 1 diagram.

Card 2/2

FEDULOV, S.A.; LADYZHENSKIY, P.B.; VENEVTSEV, Yu.N.

Study of the system $BiFeO_3$--$LaAlO_3$. Kristallografiia 9 no.4: 516-520 Jl-Ag '64. (MIRA 17:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh veshchestv i Fiziko-khimicheskiy institut imeni Karpova.

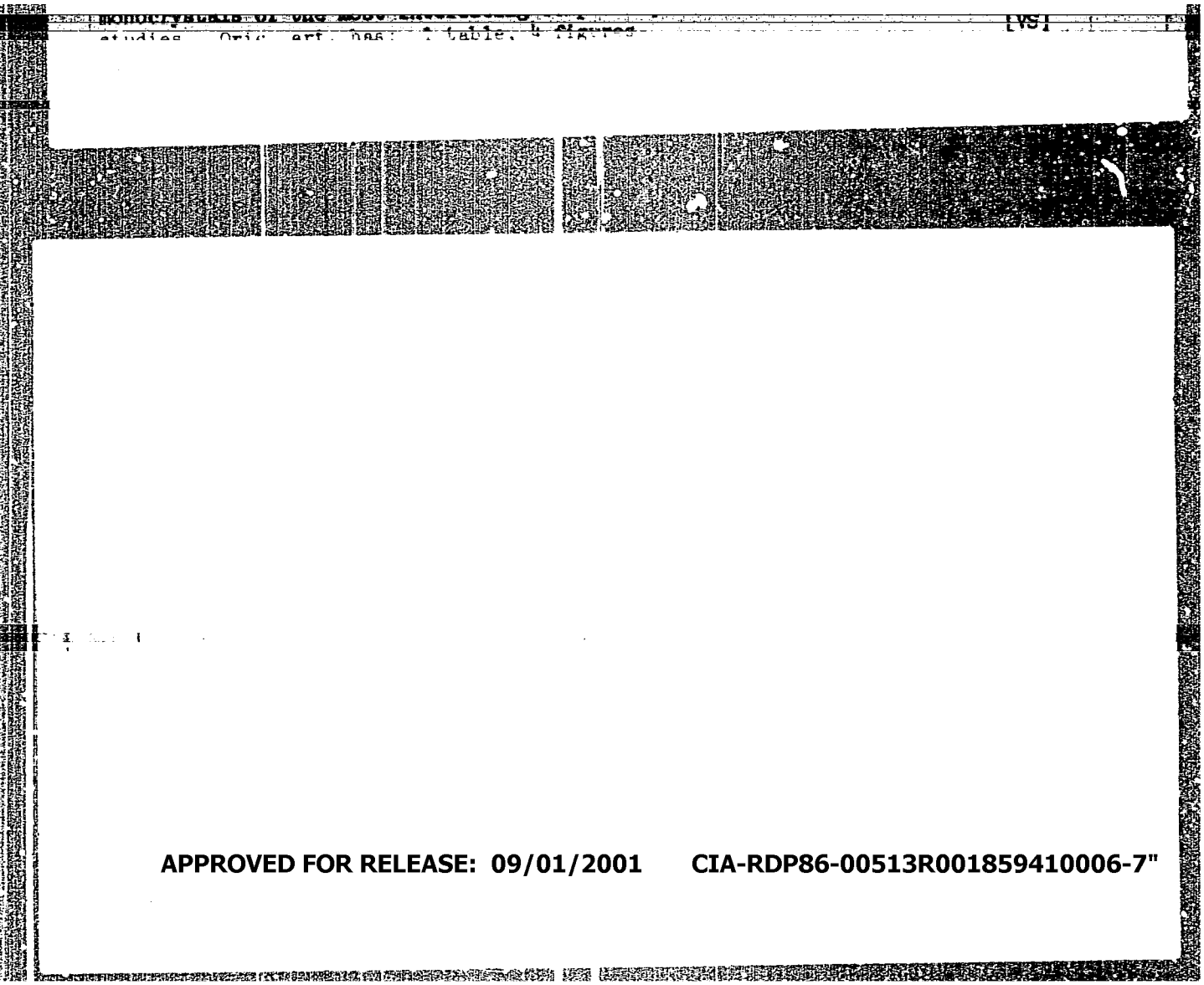
TOMASHPOL'SKIY, Yu.Ya.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

Microelectron diffraction study of the crystalline structure of the ferromagnetic Bi Fe O_3. Kristallografiia 9 no.6:846-852 N-D '64. (MIRA 18:2)

1. Fizikokhimicheskiy institut imeni Karpova.

ACCESSION NR: AP5013870

netic properties. A series of such compounds was prepared [illegible] methods from PbO_2, $CaCO_3$, Mn_2O_3, Co_2O_3, Fe_2O_3, $CdCO_3$, Nb_2O_5, MnO_2, WO_3, W, Re, and ReO$_2$. The ten compounds obtained showed various combinations of properties, such [illegible] ferromagnetic

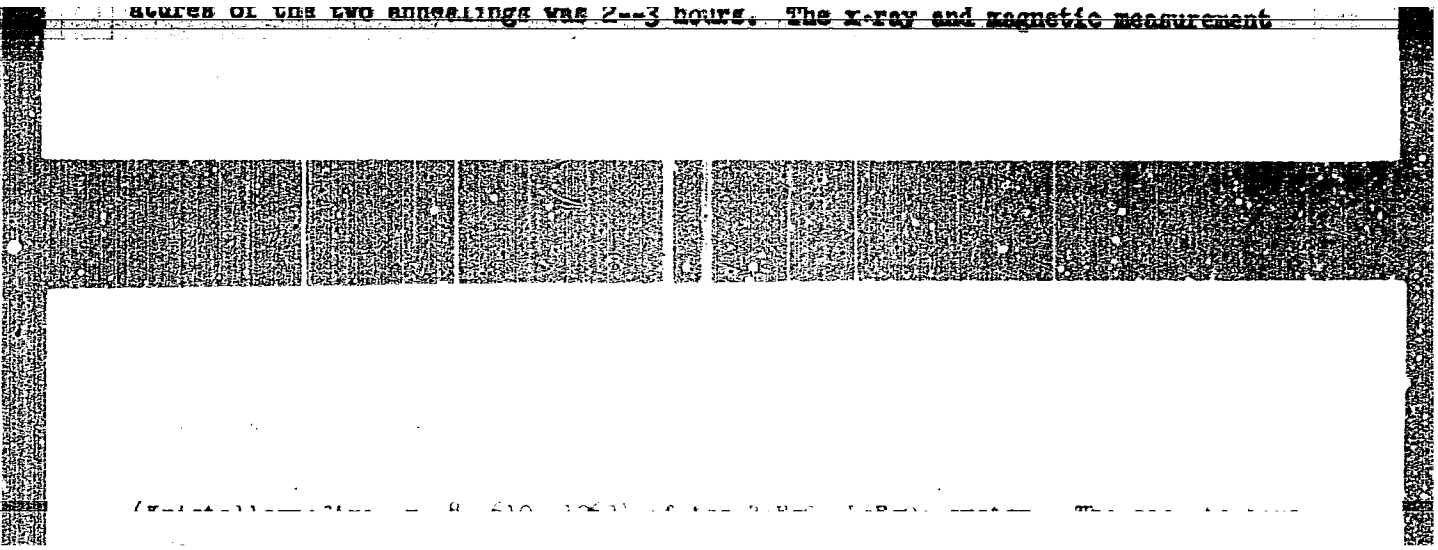


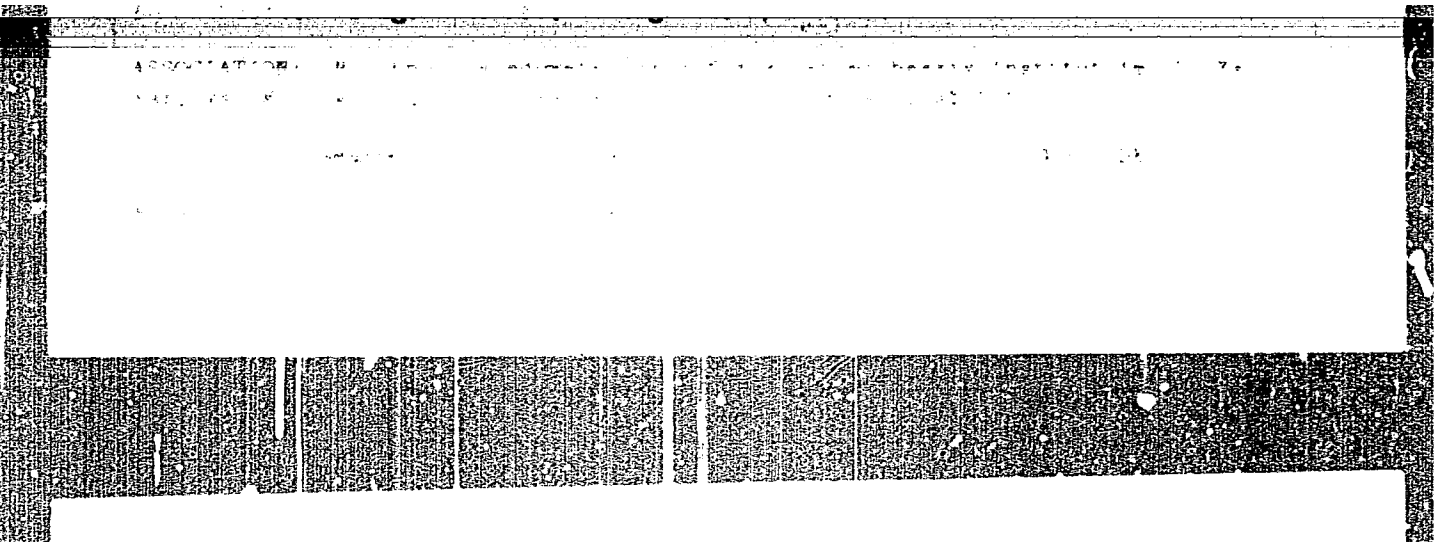
TOPIC TAGS: $BiFeO_3$, ferromagnetic, crystallography

adopted had a discrepancy factor of [illegible] between the model

termine the regions in which these properties are possessed by the solid solution simultaneously, and to establish a possible correlation between them. The samples

atures of the two annealings was 2--3 hours. The x-ray and magnetic measurement





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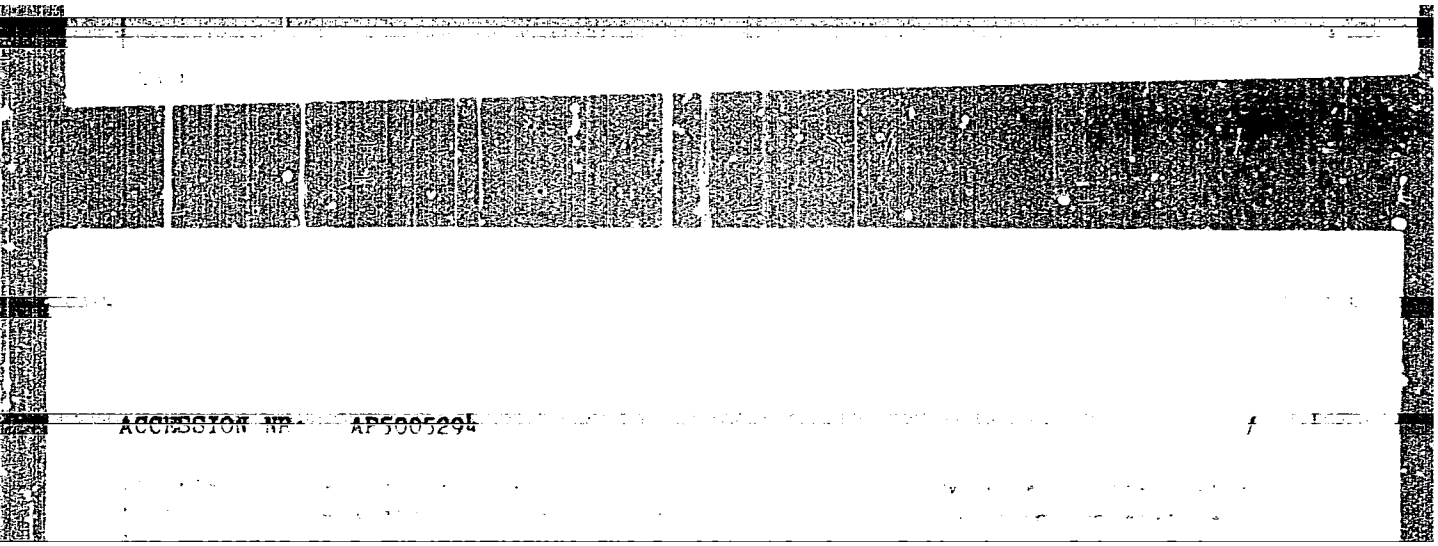

ACCESSION NR: AP5005294

ER REP SOV: 002 OTHER: 001

Card

70-3-2-9/26

AUTHORS: Verbitskaya, T.N., Zhdanov, G.S., Venevtsev, Yu.N. and Solov'yev, S.P.

TITLE: Electrical and X-ray Investigations of the System $BaTiO_3$ - $BaZrO_3$ (Elektricheskiye i rentgenograficheskiye issledovaniya sistemy $BaTiO_3$ - $BaZrO_3$)

PERIODICAL: Kristallografiya, 1958, Vol. 3, Nr 2, pp 186 - 196 (USSR).

ABSTRACT: Various solid solutions of $BaTiO_3$ - $BaZrO_3$ were prepared, having up to 30 mol% of the latter, by heating appropriate mixtures of $BaCO_3$, TiO_2 and ZrO_2 at 1 400° ± 10°C. The resulting materials were examined by the Debye-Scherrer method with a camera of diameter 11.4 cm and Cr or Cu radiation. With Cr radiation the lines 310 and 222 occur at a sufficiently high angle to give accurate cell dimensions. (For Cu radiation the appropriate lines are 501 and 431) The significance of the splitting of these under the distortions observed is explained. Dimensional measurements were made to ± 1' and monoclinic angle to ± 1.5', rhombohedral angle to ± 1' and axial ratio to ± 0.0005.

Card1/3 For the pure compounds the cell dimensions were found to be:-

70-3-2-9/26

Electrical and X-ray Investigations of the System $BaTiO_3$ - $BaZrO_3$

$BaTiO_3$, a= 3.990, c = 4.027, c/a = 1.0093, V = 64.12; and $BaZrO_3$, a = 4.186 and V = 73.35 . From 0 to 2 mol% of zirconate the dimensions of the tetragonal phase approached each other slightly. From 2 to 6.5% the solid solution was pseudo-monoclinic with a = c and the monoclinic angle decreasing from 90° 08.5' to 90°04.0' . From 6.5 to 20 mol%, the solution was rhombohedral with the rhombohedral angle equal to 89°57' and increasing from 4.0177 to 4.0440. Above 20% the solution was cubic with an increasing from 4.0447 to 4.0616 at 30%. Over the whole range the volume of the unit cell increased linearly from 64.12 to 67.00 A^3 with no breaks at the phase transitions. In pure $BaTiO_3$ three phase transitions (all with hysteresis) are observed on changing its temperature. They are at 120°, 0-5° and -70 to -80 °C. These transition points were measured for a range of compositions. Below 10% zirconate all four phases occur at appropriate temperatures, between 10 and 15% there is a confused region and above 15% only the cubic and rhombohedral phases occur. Measurements were also made of the dielectric constant of the material at various temperatures

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70-3-2-9/26

Electrical and X-ray Investigations of the System $BaTiO_3$ - $BaZrO_3$

and compositions.
The phase diagram constructed is like that found for $BaTiO_3$ - $BaSnO_3$ by Smolenskiy and Isupov (DAN, 1954, Vol 96, 53) and not like that drawn up by Kell and Hellicar (Akustika, 1956, Vol 6, Nr 2, p 232).
There are 8 figures, 2 tables and 26 references, 10 of which are Soviet, 2 German and 14 English.

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

SUBMITTED: July 18, 1957

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SOV/70-3-4-11/26

AUTHORS: Venevtsev, Yu.N., Zhdanov, G.S., Solov'yev, S.P. and Zubov, Yu.A.

TITLE: The Internal Fields in Certain Ferro-electrics with Structures of the Perovskite Type (Vnutrenniye polya v nekotorykh segnetoelektrikakh so strukturoy tipa perovskita)

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 4, pp 473-479 (USSR)

ABSTRACT: An analysis of the methods of calculating the internal field in ferro-electrics of the perovskite type is made. The internal fields and the spontaneous polarisation in the tetragonal modifications of $BaTiO_3$ and $PbTiO_3$ are calculated and the influence of certain cation parameters on these quantities is estimated. The structure was assumed, as a first approximation, to be built up of point charges and point dipoles. Kozlovskiy's method (Zh.Tekh. Fiz., Vol 21, Nr 11, p 1388, 1951) where the five different ions are attached to five separate sub-lattices was used. In $BaTiO_3$ the Ba ion was taken as the origin but in the $PbTiO_3$ the Ti in view of the reported displacements (Shirane, Pepinsky and Danner, Acta Crystall, 1956, Vol 9, p 131). Published polarisabilities were used.

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As the effective ionic charges were not known, a coefficient of charging $\gamma(0 \leqslant \gamma \leqslant 1)$, identical for all ions, was introduced. If for $BaTiO_3$ γ was taken as 1, then the calculated, spontaneous polarisation was twice the observed value. The value $\gamma = 1/2$ was therefore used for both $BaTiO_3$ and $PbTiO_3$. The spontaneous polarisation when calculated was then near to the observed value and the internal fields were found to be $BaTiO_3$: Ba, 0.04; Ti, 4.84; O_I, 3.66; O_{II} and O_{III}, 0.55. $PbTiO_3$: Pb, 1.83; Ti, 8.62; O_I = 7.02; O_{II} and O_{III}, 2.23: in each case X 10^8 V/cm. As the calculations were carried out with structure coefficients C_{ik} appropriate to a cubic structure, the approximation will be much better in the case of $BaTiO_3$ with c/a=1.01 than for $PbTiO_3$ with c/a = 1.06. The calculations were repeated with

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variations in certain of the parameters. For $BaTiO_3$ a was varied 4.2 and to 3.9 Å; α (polarisability) of the Ti was doubled and halved; the charge distribution was tried as $Ba^{+1/2}$, $Ti^{+2.5}$; the polarisability α_{Ba} of the Ba ions was doubled and halved. Similar variations were made for $PbTiO_3$. The relative influences of the various contributory effects were then apparent. The effects on the spontaneous polarisation were also found. The results are compared with those of other authors. There are 3 tables and 33 references, 13 of which are Soviet, 15 English and 5 German.

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AUTHOR: Venetsev, Yu.N. and Zhdanov, G.S.

TITLE: Crystal-chemical Analysis of the Temperature Phase Transitions in Ferro- and Antiferro-electrics with Structures of the Perovskite Type (Kristallokhimicheskiy analiz temperaturnykh fazovykh perekhodov v segneto-i antisegnetoelektrikakh so strukturoy tipa perovskita)

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 6, pp 751-75[illegible] (USSR)

ABSTRACT: It is known that the phase transitions undergone by $BaTiO_3$ and $PbTiO_3$ on cooling follow different sequences (cubic-tetragonal-monoclinic-pseudorhombohedral and cubic-rhombohedral-monoclinic, respectively). Perovskites can be crystallo-chemically characterised by the values of the tolerance factors t relating to their packings. In $BaTiO_3$ t is greater than 1 and Ti is the ferro-electric ion. In $PbZrO_3$ t is less than 1 and the Pb ion is the ferro-electric one. The co-ordinations and situations of the two types of ion are quite different and therefore so are the displacements which the structure can undergo on cooling. Earlier observations on this point by the present authors is recalled. In it the sequence

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of deformations was discussed as a function of t (Kristallografiya, 1957, Vol 2, p 233).
There 11 references, 7 of which are Soviet, 3 English and 1 French.

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

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24(2),24(3)

AUTHORS: ~~Venevtsev, Yu. N.,~~ Zhdanov, G. S., Solov'yev, S. P.

SOV/48-22-12-17/33

TITLE: Effect of Various Factors Upon the Curie Temperature of Piezoelectrics With the Structure of the Perovskite Type (Vliyaniye razlichnykh faktorov na temperaturu Kyuri segnetoelektrikov so strukturoy tipa perovskita)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 12, pp 1476-1482 (USSR)

ABSTRACT: The question concerning the Curie (Kyuri) T_k temperature of piezoelectrics having a perovskite structure, was already investigated earlier (Refs 1-7 and 8-11). The analysis of these papers shows that there is no uniform opinion on this problem. The conclusions drawn from references 1-7 are based on the assumption that in the investigated piezo- and anti-piezoelectrics the cations of the B-type are piezoactive. Actually, in some piezoelectrics the B-cations and in others the A-cations are piezoactive (Refs 8, 9, 13). As it was already stated (Ref 10), the results given in references 1-7 must be subjected to further examinations, because of the reason mentioned above. The classification of the piezo- and anti-piezoelectrics with perovskite structure depending on the

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