USTYAN, A.K.

YESAYAN, G.T.; MARDZHANYAN, G.M.; OGANESYAN, R.M.; USTYAN, A.K.

Investigating esters of sulfoacids. Report No.1: Synthesis and acaricide properties of certain esters of γ-chlorocrotylsulfo acid. Izv. AN Arm SSR Ser. khim. nauk 10 no.4:277-282 '57.
(MIRA 10:12)

1. Khimicheskiy institut AN ArmSSR i Institut zemledeliya Ministerstva sel'skogo khozyaystva ArmSSR.
(Sulfonic acids)

USSR / General and Specialized Zoology. Insects P
Biology and Ecology.

Abs Jour : Ref Zhur - Biol., No 17, 1958, No 78257

Author : Ustiyan, A. K.
Inst : AS Armenian SSR
Title : Predatory and Parasitic Insects Visiting Alfalfa.

Orig Pub : Izv. AN Arm SSR. Biol. i s.-kh. n., 1957, 10, No. 8, 25-29

Abstract : In the years 1952-56, in the Ararat Valley, there were collected or bred from parasites 58 species of useful insects, 10 of them species of predatory insects, and 48 of parasites. 35 species of parasites were noted for the first time in Armenia. 20 species of parasites were pests of alfalfa.

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[redacted]

MARDZHANYAN, G.M.; ASATRYAN, E.V.; MARKOSYAN, A.A.; UST'YAN, A.K.; AVRAMENKO, I.D., kand. biolog. nauk (Gomel'); MISKO, L.A.; AGAFONOVA, Z.Ya., kand. biolog. nauk; ABBASOV, Ya.M., mladshiy nauchnyy sotrudnik; SADYKHOV, D.M., aspirant

Brief information. Zashch. rast. ot vred. i bol. 8 no.10: 55-57 O '63. (MIRA 17:6)

1. Armyanskiy institut zemledeliya (for Mardzhanyan, Asatryan, Markosyan, Ust'yan). 2. Poltavskiy sel'skokhozyaystvennyy institut (for Misko). 3. Kurskaya sel'skokhozyaystvennaya opytnaya stantsiya (for Agafonova). 4. Azerbaydzhanskiy nauchno-issledovatel'skiy institut khlopkovodstva, Kirovabad (for Abbasov). 5. Vsesoyuznyy institut zashchity rasteniy (for Sadykhov).

MARDZHANYAN, G.M.; UST'YAN, A.K.; KANKANYAN, A.G.

Methods for increasing the efficiency of chemical control of plant lice on tobacco. Izv. AN Arm. SSR. Biol. nauki 16 no.10: 57-67 0'63 (MIRA 16:12)

1. Otdel zashchity rasteniy Instituta zemledeliya Armyanskoy SSR.

L 23773-66 EWT(1)/T JK/RO
ACC NR: AP6015272 SOURCE CODE: UR/0298/65/018/008/0010/0021

AUTHOR: Mardzhanyan, G. M.; Kankanyan, A. G.; Ust'yan, A. K.

ORG: Armenian Institute of Plant Protection (Armyanskiy institut zashchity rasteniy)

TITLE: Causes of mass reproduction of phytophagous ticks when plants are treated with organic chlorine insecticides

SOURCE: AN ArmSSR. Izvestiya. Seriya biologicheskikh nauk, v. 18, no. 8, 1965, 10-21

TOPIC TAGS: insecticide, animal reproduction, entomology, plant physiology

ABSTRACT: After a discussion of the literature in which opinion is divided on the causes for large-scale tick and mite reproduction after treatment of plants with DDT and similar insecticides the author presents the results of 10 years' research on this question. In a first series of experiments the tick population on a plant treated with DDT exceeded the control after 10-20 days, this supporting the author's hypothesis that DDT actually improves feeding conditions for ticks and mites through changes it causes within the cotton plant itself. A second series of experiments revealed essential changes in the metabolism and chemical content of cotton leaves as a result of the effect of DDT on plant physiology. The author concludes that this factor should be added to the complex factors involved in this phenomenon. Other possible factors are the greater sensitivity of predators to DDT and the hypothesis that the fertility of ticks and mites is enhanced indirectly by DDT. Orig. art. has: 2 figures and 2 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 23Feb65 / ORIG REF: 008 / OTH REF: 013

Card 1/1

MARDZHANYAN, G.M.; UST'YAN, A.K.

Use of integrated control methods against the plant louse Myzodes persicae Sulz. (Homoptera, Aphididae) on the tobacco plant. Ent. oboz. 44 no. 4:750-761 '65 (MIRA 19:1)

1. Armyanskiy nauchno-issledovatel'skiy institut zashchity rasteniy Ministerstva sel'skogo khozyaystva Armyanskoy SSR, Yerevan.

UST'YANOV, L. (UAlIM) (Leningrad)

An SSB attachment. Radio no.8:21-23 Ag '63. (MIRA 16:9)
(Radio--Receivers and reception)

SOV/58-59-5-10921

Translation from: Referativnyy Zhurnal Fizika, 1959, Nr 5, p 145 (USSR)

AUTHORS: Konozenko, I.D., Ust'yanov, V.I.

TITLE: On the Electrical Properties of the $Mn_3O_4 + Co_2O_3$ System

PERIODICAL: Nauk. zap. Chernivets'k. un-t, 1955, Vol 12, pp 121 - 128 (Ukr.; Russ.résumé)

ABSTRACT: The authors report on the methods and results of investigating the electric conductivity and thermo-emf of the $Mn_3O_4 + Co_2O_3$ system. They determine the factors influencing the magnitude of the electric conductivity and thermo-emf. It is shown that the given system can be used in some technological designs. (Chernovets'k. un-t, USSR).

The authors' résumé

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UST'YANOV V. I.

AUTHORS Konozenko I.D., Ust'yanov V.I., 57-8-8/36

TITLE On Electrical Properties of the Lead-Antimony System. (Ob elektricheskikh svoystvakh sistemy svinets-sur'ma-Russian)

PERIODICAL Zhurnal Tekhn.Fiz., 1957,Vol 27, Nr 8, pp 1686-1694 (U.S.S.R.)

ABSTRACT The authors state that alloys formed on the basis of solutions with variable compositions have electric properties which are, to their full extent,dependent on the state of primary solutions in alloys. The authors show that the electric conductivity of the alloys is a function of the component-concentration as well as of the heat conditions of the alloys. The dependence of the electric conductivity of an 1:1 alloy on the temperature shows clearly the influence of the number of dissolved atoms on the magnitude and on the character of the electric conductivity. It is assumed that antimony in the lead-antimony system plays the role of an anion former. The dissolution of lead in antimony and of antimony in lead decreases the number of charge carriers for α-,ß-solutions and for the eutectic mixture. The measurement of the hall-effect proved the assumption that the number of carriers decreases with the drop of temperature. The mobility μ determined by means of the hall-effect measurements passes through the maximum of temperature in the interval investigated. The thermo-e.m.f. of the alloys situated close to the eutectic mixture, with 40 μV/degrees, decreases with the rise of temperature. In the 1:1 alloy the thermo-e.m.f. increases in the case of heating; this takes place especially quickly

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On Electrical Properties of the Lead-Antimony System. 57-8-8/36

starting with the 2,2 fold reverse temperature and reaches a limit value of 160 μV/degrees. The authors show that the thermal coefficient of resistance of 1:1 alloys reaches the magnitude of 3% /degree at room temperature. Its value above 246°C proves the steadiness of the system-conditions.
(12 illustrations and 9 Slavic references).

ASSOCIATION Kiyev Institute for Physics of the Academy of Science of the Ukrainian SSR.
(Institut fiziki AN USSR, Kiyev)
SUBMITTED July 24, 1956
AVAILABLE Library of Congress.
Card 2/2

UST'YANOV, V.I. Cand Phys-Math Sci -- (diss) "The electrical properties of certain binary systems of the stibnite type." Kiev, 1958, 8 pp (Min of Higher Educ USSR. Len Polytechn Inst im M.I. Kalinin). 150 copies - Bibliography at end of text (12 titles). (KL, 37-58, 110).

AUTHOR: Ust'yanov, V. I. 57-28-6-10/34

TITLE: On the Electrical Properties of the System Tin-Antimony (Ob elektricheskikh svoystvakh sistemy olovo-sur'ma)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, nr 6, pp. 1190-1194 (USSR)

ABSTRACT: The modern semiconductor theory explains the electrical properties of semiconductors on the basis of the ideal crystal lattice. It is just by the lattice that the forbidden-, valence-, and conductivity zones are determined. At the same time, the work carried out under the supervision of A. F. Ioffe, Member of the Academy of Sciences, USSR, show that the energetic properties characteristic of semiconductors are conserved in transition to the liquid state (references 1 - 4). Besides, a whole class of amorphous substances with semiconductor properties was discovered (reference 5). The author succeeded in demonstrating the value of the near order also in the case of

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the binary system Pb-Sb, which was developed on the basis of primary solutions of varying concentration (reference 6). Thus, the conception of the cardinal influence exercised by the near order proved to be justified not only in the liquid phase or in the amorphous substance, but also in the solid body. From this point of view it was interesting to investigate the electrical properties of the system tin-antimony in compositions which contain the primary solution and β'-phase and a phase β'. Summary: 1) The electrical properties of the system tin-antimony are determined by the composition of the alloy. The course taken by temperature of conductivity is a function of the properties in the phase alloy and their interrelations. Thus, conductivity in alloys with a γ-solution is changed by more than 80 times its amount. Apparently, the influence exercised by the number of points with a new order, which increases with temperature, makes itself felt. In single-phase alloys without a γ-solution nothing of this kind can be observed. 2) The dissolution of antimony, which increases with temperature, reduces the conductivity of the alloy. In this alloy antimony seems to be an acceptor.

3) In alloys with the β'-phase electric conductivity depends on the quantity of antimony in the lattice. According to the author, it attains its maximum with a content of 43 % in the alloy. 4) The thermoelectromotive force is a function of the composition of the alloy. It attains maximum values of the order of 10^2 microvolt/degrees. The shifting of the maximum value of the thermoelectromotive force on the curves $\lg\alpha = f\left(\frac{10^3}{T}\right)$ shows that its position also depends on the composition of the alloy. This seems indirectly to confirm the fact that antimony is an acceptor in the alloy concerned. 5) Carrier concentration in the investigated interval of the interrelations of the components decreases linearly with an increase of the antimony content in the alloy. The sign of the carriers is negative. 6) The termal resistance coefficient differs by a factor 10^4. There are 5 figures and 12 references, 11 of which are Soviet.

On the Electrical Properties of the System Tin-Antimony 57-28-6-10/34

ASSOCIATION: Institut fiziki AN USSR, Kiyev
(Institute of Physics, AS Ukrainian SSR, Kiyev)

SUBMITTED: April 20, 1957

1. Antimony-tin systems—Electrical properties 2. Antimony-tin systems—Phase studies

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AUTHORS: Konobeyko, I. D., Ustiyanov, V. I., Kedrov, V. P. SOV/57-28-7-6/35

TITLE: Absorption of the Gamma-Ray Emission of Cobalt-60 in Cadmium Sulfide (Pogloshcheniye gamma-izlucheniya kobal'ta-60 v sernistom kadmii)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol. 28, Nr 7, pp. 1397 - 1401 (USSR)

ABSTRACT: The linear absorption factor of the pressed powdery cadmium sulfide was determined in dependence on the pressing effect. It is shown that at pressures of more than 10^4 kg/cm^2 the factor remains practically constant and equal to 0,184 cm^{-1}, i. e. close to the theoretical value. The linear factor of the pressed (P = 11 300 kg/cm^2) crystalline cadmium sulfide was determined as being equal to 0,189 cm^{-1}. It is shown that also this value is close to the theoretical value. The mass absorption factor of cadmium sulfide was measured immediately (0,042 cm^2/g) and determined as sum of the mass absorption factors

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of the components (0,047 cm^2/g). The results agree well. The mean path of the gamma quanta of cobalt-60 in cadmium sulfide was determined as being equal to 5,3 cm, and the thickness of the half attenuation in the cadmium sulfide with 3,6 cm for the quanta of this energy. There are 5 figures and 8 references, 3 of which are Soviet.

ASSOCIATION: Institut fiziki AN USSR, Kiyev (Institute of Physics, AS Ukrainian SSR, Kiyev)

SUBMITTED: November 25, 1957

1. Cadmium sulfide--Absorptive properties 2. Cobalt isotopes (Radioactive)--Applications 3. Gamma radiation--Chemical effects

UST'YANOV, V. F.

24(4) PHASE I BOOK EXPLOITATION SOV/3140

Akademiya nauk Ukrainskoy SSR. Institut fiziki

Fotoelektricheskiye i opticheskiye yavleniya v poluprovodnikakh; trudy pervogo Vsesoyuznogo soveshchaniya po fotoelektricheskim i opticheskim yavleniyam v poluprovodnikakh, g. Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Prezidium. Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Klaina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisk) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectricity, photoelectrophotoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by E. I. Rashba, O. V. Snitko, K. B. Tolpygo, A. P. Lukirskiy, and M. K. Sheynkman. References and discussion follow each article.

Table of Contents:

Card 15/16

KONOZENKO, I.D.; UST'YANOV, V.I.

CdS crystals as the receivers of gamma rays. Fiz.tver.tela 1 no.1:89-94 Ja '59. (MIRA 12:4)

1. Institut fiziki AN USSR, Kiyev.
(Cadmium sulfide) (Gamma rays)

3P195

S/058/62/000/004/155/160
A061/A101

AUTHORS: Akhvlediani, Z. G., Konozenko, I. D., Ust'yanov, V. I.

TITLE: G-conductivity of CdS

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 3 - 4, abstract 4-4-6yu (V sb. "Fotoelektr. i optich. yavleniya v poluprovodnikakh", Kiyev, AN USSR, 1959, 389 - 395)

TEXT: Experiments conducted to investigate the secondary conductivity of CdS single crystals and polycrystals under the action of gamma radiation are described. Specially prepared CdS single crystals and polycrystals were transferred to a darkroom. The temperature was varied from 83 to 333°K. Co^{60} was used as the gamma source. The volt-ampere characteristics of CdS single crystals and polycrystals at different gamma dose rates and temperatures, the dosimetric characteristics at various temperatures, the relaxation characteristics at various dose rates and temperatures, and the volt-ampere dark characteristics were taken. It was inferred from experimental results that the gamma current was due to the energy of Compton electrons capable of displacing the lattice ions. This displacement can be related to the formation of an active center which vanishes

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S/058/62/000/004/155/160
A061/A101

G-conductivity of CdS

when the ion returns to the lattice point as the result of thermal motion. These assumptions are backed by the temperature dependence of relaxation curves, and also by the fact that the temperature decrease leads to a greater lag of the gamma current drop. There are 10 references.

M. B.

[Abstracter's note: Complete translation]

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UST'YANOV, V.I.

82551

S/181/60/002/007/031/042
B006/B060

24.7700

AUTHORS: Konozenko, I. D., Ust'yanov, V. I., Galushka, A. P.

TITLE: The Conditions for the Occurrence of Gamma Conductivity in CdS Single Crystals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 7, pp. 1584-1591

TEXT: The authors studied the effect of temperature on the electrical conductivity of CdS single crystals with the aim of exploring the nature of the conductivity stimulated by gamma radiation. The temperature dependence of the dark conduction of crystals prior to and after their irradiation with gamma rays, and the thermostimulated conductivity due to illumination or gamma irradiation of the crystal were investigated. The measurements were made with a cryostat which is schematically shown in Fig. 1 and described. Co^{60} of 300 millicuries served as the gamma source, and the maximum intensity amounted to ~ 3000 μr/sec. For the measurement of the temperature dependence of conductivity, the crystals were previously heated in darkness for 1 hour at 100°C, and then cooled, in darkness, down to nitrogen temperature. Depending on the duration of the growth or of the

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The Conditions for the Occurrence of Gamma Conductivity in CdS Single Crystals

drop of the photocurrent, the crystals were subdivided into two groups: in the first group this period was several seconds, and in the second it was fractions of a second. Fig. 2 shows $\tan I_{dark} = f(10^3/T)$ for specimens of the first group. In the range of 166.67 - 250°K conductivity increases only slightly with temperature. In this range, ΔE_1 of the various specimens was between 0.08 and 0.14 ev. At higher temperatures the climb becomes suddenly steeper (some curves exhibit a salient point), and ΔE_2 was between 0.6 and 0.8 ev (ΔE denotes the depth of the impurity centers). Fig. 3 shows the same for crystals of the second group. For this, σ is practically independent of temperature up to 485°K, while at higher temperatures there is a steep rise; all these curves exhibit a salient point. With a view to checking the existence of local trap-like centers and to determining their depth, the authors studied the thermostimulated conductivity of the various specimens. For gamma-sensitive crystals, current maxima were found at 175 and 290 - 315°K (Fig. 4), whereas gamma-insensitive ones had a maximum only in the last-mentioned range. The levels responsible for the peak at 300°K are located (as had been calculated by means of formula (2))

The Conditions for the Occurrence of Gamma Conductivity in CdS Single Crystals

S/181/60/002/007/031/042
B006/B060

0.45 ev below the bottom of the conduction band. The results are finally discussed in great detail. Gamma absorption is mainly due to Compton scattering (92%), but also to photoeffect and pair production. The quantum yield was found to attain $\sim 10^5$ electrons per gamma quantum. The gamma-induced conductivity ($\Delta I \geq 10^{-13}$a) is mainly due to impurity centers (shallow traps) and donor centers located near the bottom of the conduction band. Additional experiments were undertaken in order to test the role played by shallow traps in gamma conductivity. These traps can be caused by the introduction of bismuth impurities, as is shown by the appearance of peaks (Figs. 7, 8). Finally, the role played by shallow traps and donor centers in the mechanism of the formation of gamma current is discussed, and the following mechanism is assumed: the Compton electrons arising on the scattering of gamma quanta are exciting carriers from band to band, excitons as well as electrons from lower atomic shells. In the case of the existence of shallow traps, excitons can decay into negatively charged centers, and this decay is followed by a transition of electrons into the conduction band. The authors thank V. K. Lashkarev, Academician of the AS UkrSSR as well as M. K. Sheynkman for discussions. There are 8 figures and 11 references: 6 Soviet and 5 US.

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82551

The Conditions for the Occurrence of Gamma Conductivity in CdS Single Crystals

S/181/60/002/007/031/042
B006/B060

ASSOCIATION: Institut fiziki AN USSR Kiyev
(Institute of Physics of the AS UkrSSR, Kiyev)

SUBMITTED: July 30, 1959

Card 4/4

25581
S/185/60/005/002/018/022
D274/D304

24.7700 (1482, 1138, 1035)

AUTHORS: Konozenko, I.D., Ust'yanov, V.I. and Galushka, A.P.

TITLE: On the nature of gamma-ray conductivity in cadmium-sulfide crystals

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 2, 1960, 276-277

TEXT: The fact that γ-conductivity is found in certain crystals only of cadmium sulfide, makes the physical processes involved more difficult to understand. Thus, owing to non-homogeneous composition of such crystals in the vapor phase, an extraordinary spread in the values of the dark resistivity of the crystals is observed. The author obtained single crystals of cadmium sulfide by a method (Ref. 3: E. Grillot, Compt. Rend., 242, 779, 1956) which yielded more homogeneous crystals; the spread of dark resistivity did not exceed an order of magnitude of 1.5. These crystals can be divided into two groups according to the lag in their photoconductivity. To the first group belong the crystals for which an 80% rise (or drop) in

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On the nature of gamma-ray...

photocurrent takes place in tens of seconds. An investigation of the temperature dependence of electrical conductivity for this group showed the presence of impurity centers with following activation energy: donor-levels with ΔE from 0.4 to 0.12 eV, and from 0.5 to 1.2 eV; trapping-levels with ΔE_3 from 0.08 to 0.13 eV, and from 0.5 to 1.2 eV. To the second group belong crystals which have no trapping levels with activation energy from 0.08 to 0.13; for this group the rise (or drop) in photocurrent takes place in a few seconds. It is noted that first-group crystals show a decrease in electrical resistivity under the effect of γ-radiation; they are called γ-sensitive. The crystals of the second group are not γ-sensitive. Hence the author considers that the trapping centers with small activation energy have an important role in the generation of γ-conductivity. It can be assumed that the Compton electrons excite the carriers and the excitons; the latter, can increase the carrier concentration in the conductivity zone, i.e. lead to γ-conductivity. A. Rose (Ref. 5: Phys. Rev., 97, 1543, 1955) and (Ref. 6: Poluprovodnikovyye preobrazovateli energii izlucheniya, IIL, 1959 (Semiconductor Converters of Radiation Energy)),

On the nature of gamma-ray...

showed that the great inertia of the cadmium crystals (the crystals of the first group - according to this article), can be explained by virtue of the centers of two types with a different electron-capture cross-section. There are no tapping centers in the absence of γ-sensitivity; this should be expected with the exciton mechanism too, of γ-conductivity. There are 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: A. Rose, Phys. Rev., 97, 1543, 1955.

ASSOCIATION: Instytut fizyky AN USSR (Physics Institute AS UkrSSR)

SUBMITTED: December 23, 1959

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KONOZENKO, I.D.; UST'YANOV, V.I.

Production of large CdS single crystals for dosimetry of gamma field. Ukr. fiz. zhur. 5 no. 5:606-614 S-O '60. (MIRA 14:4)

1. Institut fiziki AN USSR.
(Cadmium sulfide crystals) (Gamma rays)

33105
S/638/61/001/000/031/056
B116/B102

24,7100 (1153, 1160, 1454)

AUTHORS: Konozenko, I. D., Ust'yanov, V. I., Galushka, A. P.

TITLE: Study of the γ-conductivity of CdS single crystals

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy. v. 1. Tashkent, 1961, 200-210

TEXT: The authors describe the production of CdS single crystals and present the investigation results. They found that their γ-conductivity was due to local centers having the form of shallow traps (ΔE = 0.08-0.14 ev) since the slightest disturbance of crystallization considerably influences the crystal properties, the authors developed a special production method to reduce the parameter spread. Crystallization took place at 1200°C in quartz tubes, in which prior to heating, the air replaced by nitrogen. During the heating nitrogen is continuously added with the flow rate being chosen in such a way that at 1200°C a temperature drop of 10-15°C occurs. This method guarantees a small number of crystallization centers and a high growth rate of the crystals. Crystallization where a constant

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Study of the γ-conductivity ...

nitrogen flow rate and constant temperatures are of great importance, takes 1.5-2 hr. Debye-Sherrer patterns showed that the CdS single crystals grown in such a way have a hexagonal lattice with a = 4.08 Å, c = 6.72 Å, and c/a = 1.65. The temperature dependence of the dark conductivity of the crystals before and after γ-irradiation and the thermostimulated conductivity caused by irradiation by light or gamma rays were studied in a thermostat. Co^{60} of a maximum intensity of 3 curies/sec served as γ-source. The CdS crystals obtained can be divided into two groups according to their dark conductivity and the photocurrent inertia: (1) increase and decrease of the photocurrent take several seconds, (2) only fractions of a second. From 170-250°K the conductivity of the first group slightly increases with temperature. ΔE_1 = 0.08-0.14 ev. Above 250°K the curves become steeper and ΔE_1 = 0.6-0.9 ev. The conductivity of the second group hardly increases from 170-285°K and beyond 285°K the curves has the same slope as that of the first group. Considerably γ-conductivity ($\Delta I \leqslant 10^{-13}$a) is observed where both types of the local centers exist, i.e. in crystals of the first group. The experiments showed that γ-irradiation increases the dark conductivity of both crystal groups. Calculations of the author showed that γ-radiation is mainly damped by

Study of the γ-conductivity ...

Compton scattering (by 92%). Impurity centers causing shallow traps play an important part in the occurrence of γ-conductivity. It was found that after introduction of an impurity (Bi, Au, Sb, Hg) into crystals nonsensitive to γ-radiation, their sensitivity increases (shallow traps as new centers). The increase in concentration of shallow traps leads to a strong increase in the crystal inertia, it determines γ-conductivity; and causes a longer rise time of the γ-current. The time of the decrease of γ-current is determined by the carrier recombination rate. There are 6 figures, 1 table, and 11 references: 7 Soviet and 4 non-Soviet. The three references to English-language publications read as follows: Frerichs, R., Phys. Rev., 72, 594, 1947; Hollander, L., Rew Sci Instr., 28, 15, 322, 1957; Rose, A., Proc. of IRE, 43 (12), 1850, 1955.

ASSOCIATION: Institut fiziki AN USSR (Institute of Physics AS UkrSSR)

Card 3/3

28079

S/181/61/003/009/011/039
B102/B138

26.2421

AUTHORS: Konozenko, I. D., Ust'yanov, V. I., and Galushka, A. P.

TITLE: Gamma-conductivity of cadmium selenide

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2629 - 2634

TEXT: The gamma-conductivity of CdSe has been examined in a wide temperature range at a constant gamma intensity of 35 curies/sec emitted from a Co^{60} source. The stationary value of the gamma-induced current was determined at various temperatures. Whenever the temperature was changed, the crystal was heated to $\approx 400^{\circ}K$ without irradiation, and then cooled to the required temperature. The dark resistivity was checked carefully. The following characteristics of the CdSe crystals were measured by means of the apparatus shown in Fig. 1: dark conductivity (77 - 300°K); dark gamma-conductivity (77 - 380°K); thermally excited photo- and gamma-conductivity (77 - 300°K). Temperature was measured on a copper-constantan thermocouple with a sensitivity of $\pm 0.25^{\circ}$. The dark conductivity of the CdSe crystals varied within 2.5 orders of magnitude. Thermo-photoconductivity was measured at different

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Gamma-conductivity of...

heating rates. An increase in the heating rate was found to increase the current maximum and shift it to higher temperatures. Apart from the fundamental impurity levels (peaks between 110 - 130°K), there seem to be other levels which are characterized by low peaks at other temperatures. The excited impurity levels ranged from 0.18 - 0.35 ev. The thermal gamma-conductivity measurements showed that the principal maxima remained at about 115°K independent of heating rate and gamma irradiation. This means that the nature of the adhesion centers of the principal maximum is not affected by gamma irradiation. Additional regions of increased conductivity occurred between 100 and 200°K for the two crystals. The gamma-induced current remained almost constant when the specimen was heated from 77 to 200 - 210°K, and rapidly dropped to zero when temperature was further increased (260 - 300°K). The gamma-sensitivity $W = (I_\gamma - I_{th})/I_{th}$ decreased rapidly with increasing temperature. In one of the specimens it was $\gg 10^8$ at 77°K, and no more than about 10^{-1} at 303°K. Discussion of the results produced the following conclusions. 1) The upper limit of gamma-conductivity in CdSe crystals ($\sigma = 10^{-13} - 10^{-11}$ ohm^{-1}.cm^{-1}) was around ≈ 300°K, no lower

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limit has been found. 2) Gamma-conductivity is related to the existence of shallow impurity levels ($\Delta E \approx 0.18 - 0.35$ ev). 3) Gamma-irradiation of CdSe produces new impurity centers (radiation defects). 4) The heating of CdSe produces impurity centers similar to radiation defects. 5) Gamma-sensitivity vanishes at about the same temperatures at which the radiation defects begin to be annihilated. 6) CdSe has thermo-stimulated conductivity due to gamma-irradiation. The authors thank V. L. Vinetskiy for a discussion. There are 6 figures, 1 table, and 8 references: 6 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: R. Frerichs. Phys. Rev. 76, 1869, 1949, S. Ibuki. J. Phys. Soc. Japan, 14, 1196, 1959.

SUBMITTED: August 2, 1960 (initially), March 28, 1961 (after revision)

USTYANOV, V. I.

9C

PHASE I BOOK EXPLOITATION SOV/6176

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences USSR, Resp. Ed.

Deystviye vadernykh izlucheniy na materialy (The Effect of Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR, 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A. Adasinskiy; Editorial Board: P. L. Gruzin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. F. Pravdyuk; Ed. of Publishing House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

Card 1/14

90

The Effect of Nuclear Radiation (Cont.) SOV/6176

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense γ-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

Card 2/14

36389
S/181/62/004/004/033/042
B102/B104

24.2600
26.1512

AUTHORS: Litovchenko, P. G., and Ust'yanov, V. I.

TITLE: Gamma- and photoelectrical properties of cadmium sulfide

PERIODICAL: Fizika tverdogo tela, v. 4, no. 4, 1962, 1050-1052

TEXT: An experimental investigation was made of the gamma-conductivity of CdS crystals and the spectral distribution of their photoconductivity, and it was tried to find a relation between these effects. The CdS crystals investigated were diffusion-doped with gold or indium at 400°C. The spectral distribution of the photoconductivity was determined with an УМ-2 (UM-2) monochromator; it has a peak at the self-absorption edge (λ=518 mμ) and remains unchanged when the crystal is heated to 400°C. If the CdS crystal is gold-doped, a new broad band of photoconductivity arises with the maximum at λ = 660-680 mμ and distinct intrinsic and impurity peaks. The impurity peaks of In-doped CdS depend on the annealing conditions and are between 565 and 595 mμ. The band broadening with temperature of CdS+Au amounts to $5.5 \cdot 10^{-4}$ °K. The dark conductivity

Card 1/2

Gamma- and photoelectrical ...

of non-doped CdS is of the order of 10^{-13}, doping reduces it to $\sim 10^{-11}$-10^{-12} ohm^{-1}. σ_γ of non-doped crystals is $\sim 10^{-11}$, for the Au-doped ones it is $\sim 10^{-10}$, and for the In-doped ones $\sim 10^{-6}$-10^{-7} ohm^{-1}; the γ-irradiation intensity was 3.6 mCu/sec. σ_{phot} of the non-doped crystals is $\sim 10^{-7}$-10^{-8}, for the doped ones it is $\sim 10^{-6}$ ohm^{-1}. For crystals which show a longwave photoconduction peak, σ_{phot} is the greater for this peak, the greater σ_γ is. For CdS+Au no parallelism between σ_γ and σ_{phot} is observed. It is concluded that the presence of impurity centers yielding photoconduction bands is insufficient for the occurrence of high gamma-conductivity. The presence of other shallow centers is necessary. There are 2 figures and 1 table.

ASSOCIATION: Institut fiziki AN USSR Kiyev (Institute of Physics AS UkrSSR, Kiyev)

SUBMITTED: November 13, 1961

Card 2/2

247000

38937

S/181/62/004/007/001/037
B102/B104

AUTHORS: Litovchenko, P. G., and Ust'yanov, V. I.

TITLE: Kinetics of gamma conductivity in cadmium sulfide crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 7, 1962, 1689 - 1694

TEXT: The kinetics of gamma conductivity in hexagonal CdS crystals was studied experimentally at room temperature. The method is described in Ukr. fiz. zhurn., 5, 606, 1960. The base of the crystals was 2 - 4 mm^2, their height 2.5 - 3 mm. The measurements were made in the dark (at constant dark current) and under a gamma irradiation (Co^{60}) of 3600 $\mu r/sec$, also under light (constant photocurrent) of λ = 407, 547, 667, and 706 $m\mu$, transmission band $\lambda \approx 15$ $m\mu$ simultaneously with the above mentioned gamma radiation. $\Delta I_{ph}/\Delta I_{\gamma}$ was 1, 4, 10 and the photocurrents were between 5 and $60 \cdot 10^{11}$ quanta/cm·sec. The measurements are presented graphically in curves indicating the time dependences of $\Delta I_{\gamma}/\Delta I_{max}$ under the different conditions. These show that (1) the kinetics of gamma conductivity de-

Card 1/3

pends on the degree to which the impurity centers are filled; (2) irradiation with visible light considerably influences the kinetics of gamma conductivity if the wavelength is beyond the self-absorption edge, this being related to the penetration depth which increases with λ; (3)in the non-illuminated crystal, excitation and weakening of the gamma current are subject to a complex law, but the illuminated crystal obeys an exponential law; i. e. the impurity centers are largely filled up with electrons excited by light. At a given irradiation intensity this means that during irradiation the extent to which the impurity centers are filled remains practically constant. As the number of free carriers in the conduction band increases, so does the number of recombining electrons, thus leading to a state of equilibrium. If irradiation ceases the impurity levels no longer remain subject to the carrier redistribution mechanism and the gamma conductivity decreases exponentially. The fact that CdS crystals are activated by light is of practical importance. There are 6 figures and 2 tables.

ASSOCIATION: Institut fiziki AN USSR Kiyev (Institute of Physics AS UkrSSR Kiyev)

Kinetics of gamma ...

S/181/62/004/007/001/037
B102/B104

SUBMITTED: December 11, 1961

Card 3/3

UST'YANOV, Vasiliy Ivanovich; TITOVA, N.M., red.; TURBANOVA, N.A., tekhn. red.

[A universal crystal in automatic control] Universal'nyi kristall avtomatiki. Kiev, Izd-vo AN USSR, 1963. 89 p. (MIRA 16:6)

(Cadmium sulfide) (Automatic control)

GALUSHKA, A.P.; LITOVCHENKO, P.G.; UST'YANOV, V.I.

Method of investigating the photoelectric properties of semiconductors. Zav.lab. 29 no.11:1335-1338 '63. (MIRA 16:12)

1. Institut fiziki AN UkrSSR.

KONOZENKO, Ivan Dmitriyevich; UST'YANOV, Vasiliy Ivanovich; MARTINENKO, L.I., red.

[Physics in agriculture] Fizika v sil's'komu hospodarstvi. Kyiv, Naukova dumka, 1964. 134 p. (MIRA 17:10)

L 3411-66 EWT(m)/EPF(c)/ETC/EPF(n)-2/EWG(m)/EWP(t)/EWP(b) IJP(c)
RDW/JD/GG/GS

ACCESSION NR: AT5023812 UR/0000/62/000/000/0308/0317

50
49
B+1

AUTHOR: Konozenko, I. D.; Ust'yanov, V. I.; Galushka, A. P.

TITLE: Gamma conductivity of cadmium selenide

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 308-317

TOPIC TAGS: cadmium selenide, electric conductivity, gamma radiation, irradiation effect, crystal defect, impurity level

ABSTRACT: An experimental study of the γ conductivity of cadmium selenide crystals with a dark electrical conductivity of 10^{-8} to 10^{-11} ohm^{-1} cm^{-1} at 25C was carried out with Co^{60} as the source of γ radiation. Both the thermostimulated conductivity and the thermostimulated gamma conductivity were measured (respectively in the 77-380K and 77-300K range). It is shown that the γ sensitivity is related to the presence of shallow impurity levels in the crystal ($\Delta E = 0.18$-0.35 eV). The irradiation of CdSe crystals with Co^{60} γ radiation is found to cause the formation of new impurity centers, i.e., radiation-induced disturbances. Anneal-

Card 1/2

L 3411-66
ACCESSION NR: AT5023812

ing of the crystals produces impurity centers the character of which resembles that of the radiation-induced disturbances. The γ sensitivity disappears at approximately the same temperatures at which the radiation defects disappear. "The authors are indebted to V. L. Vinetskiy for his part in the review of the results." Orig. art. has: 7 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 009 OTHER: 003

Card 2/2 Md

L 3373-66 EWT(l)/EWT(m)/EPF(c)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c) IJP(c)
JD/GG/GS

ACCESSION NR: AT5023813 UR/0000/62/000/000/0318/0328

AUTHOR: Konozenko, I. D.; Ust'yanov, V. I.

TITLE: Effect of gamma rays on the properties of Cds single crystals

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 318-328

TOPIC TAGS: cadmium sulfide, electric conductivity, gamma radiation, irradiation effect, crystal defect, impurity center

ABSTRACT: The phenomena induced by gamma radiation in CdS single crystals are investigated over a wide temperature range. The appearance of additional conductivity under bombardment with Co^{60} is due to the ionizing effect of Compton electrons and to the appearance of radiation defects. Gamma conductivity is related to the formation of certain energy levels by the impurity centers. Radiation defects should be due to the displacement of cadmium (not sulfur) nuclei from the lattice points, causing the appearance of donor-type impurity centers, which increase the conductivity. This is what happens during irradiation at the liquid nitrogen temperature. There is reason to believe that in the

Card 1/2

L 3373-66
ACCESSION NR: AT5023813

kinetics of formation of the γ current, an important part is played by the donor-type impurity centers. Introduction of donor levels for electrons, particularly that of Bi, always increases the free electron concentration. It is thought that the exciton mechanism may also have a certain role in the appearance of γ conductivity. Radiation defects produced by γ rays of Co^{60} in CdS are characterized by a low activation energy; their healing is observed even at the liquid nitrogen temperature, but some are more stable and heal only after heating to 60C. However, they all belong to Frenkel-type single defects. The relaxation processes of increase and decrease in γ conductivity are due to the filling of traps and electron-hole recombinations. The data obtained by this investigation, which elucidated certain aspects of the nature of γ conductivity in CdS single crystals, have enabled the authors to extend the scope of practical applications of these crystals in the field of automatic equipment, particularly radiation automatic equipment. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: NP, SS

NO REF SOV: 007 OTHER: 005

Card 2/2 hd

L 3409-66 EWT(l)/EWT(m)/EPF(c)/EPF(n)-2/T/EWA(h) IJP(c) GG/GS/AT

ACCESSION NR: AT5023816 UR/0000/62/000/000/0341/0346

AUTHOR: Galushka, A. P.; Litovchenko, P. G.; Ust'yanov, V. I.

TITLE: Method of studying the properties of semiconductors irradiated with gamma quanta

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya: Moscow, Izd-vo AN SSSR, 1962, 341-346

TOPIC TAGS: semiconductor, gamma irradiation, electron energy level, dark current, photoconductivity, irradiation effect, electric conductivity

ABSTRACT: The apparatus employed consists of a container for the Co^{60} source of γ radiation, a system for illuminating the semiconductor sample, and a thermostat, all of which are described in detail together with the electric circuit. The experimental method involves the detection of donor levels and determination of their depth by measuring the dark current I_T as a function of temperature T. The presence and depth of trap-type levels is determined by means of the thermostimulated photoconductivity and thermostimulated γ conductivity. The

Card 1/2

L 3409-66

ACCESSION NR: AT5023816

stability of the radiation defects was observed and determined by recording the relation $\log \sigma_T = f(\frac{1}{T})$. Kinetic light characteristics (curves of excitation and drop of photocurrent) were recorded with an ENO-1 oscillograph, and curves of γ excitation (γ drop) were recorded with an EPPV-51 electronic recorder. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 001 OTHER: 000

Card 2/2

L 3409-66 EWT(l)/EWT(m)/EPF(c)/EPF(n)-2/T/EWA(h) IJP(c) GG/GS/AT

ACCESSION NR: AT5023816 UR/0000/62/000/000/0341/0346

AUTHOR: Galushka, A. P.; Litovchenko, P. G.; Ust'yanov, V. I.

TITLE: Method of studying the properties of semiconductors irradiated with gamma quanta

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izluchenii na materialy. Moscow, 1960. Deystviye yadernykh izluchenii na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya: Moscow, Izd-vo AN SSSR, 1962, 341-346

TOPIC TAGS: semiconductor, gamma irradiation, electron energy level, dark current, photoconductivity, irradiation effect, electric conductivity

ABSTRACT: The apparatus employed consists of a container for the Co^{60} source of γ-radiation, a system for illuminating the semiconductor sample, and a thermostat, all of which are described in detail together with the electric circuit. The experimental method involves the detection of donor levels and determination of their depth by measuring the dark current I_T as a function of temperature T. The presence and depth of trap-type levels is determined by means of the thermostimulated photoconductivity and thermostimulated conductivity. The

Card 1/2

L 3409-66

ACCESSION NR: AT5023816

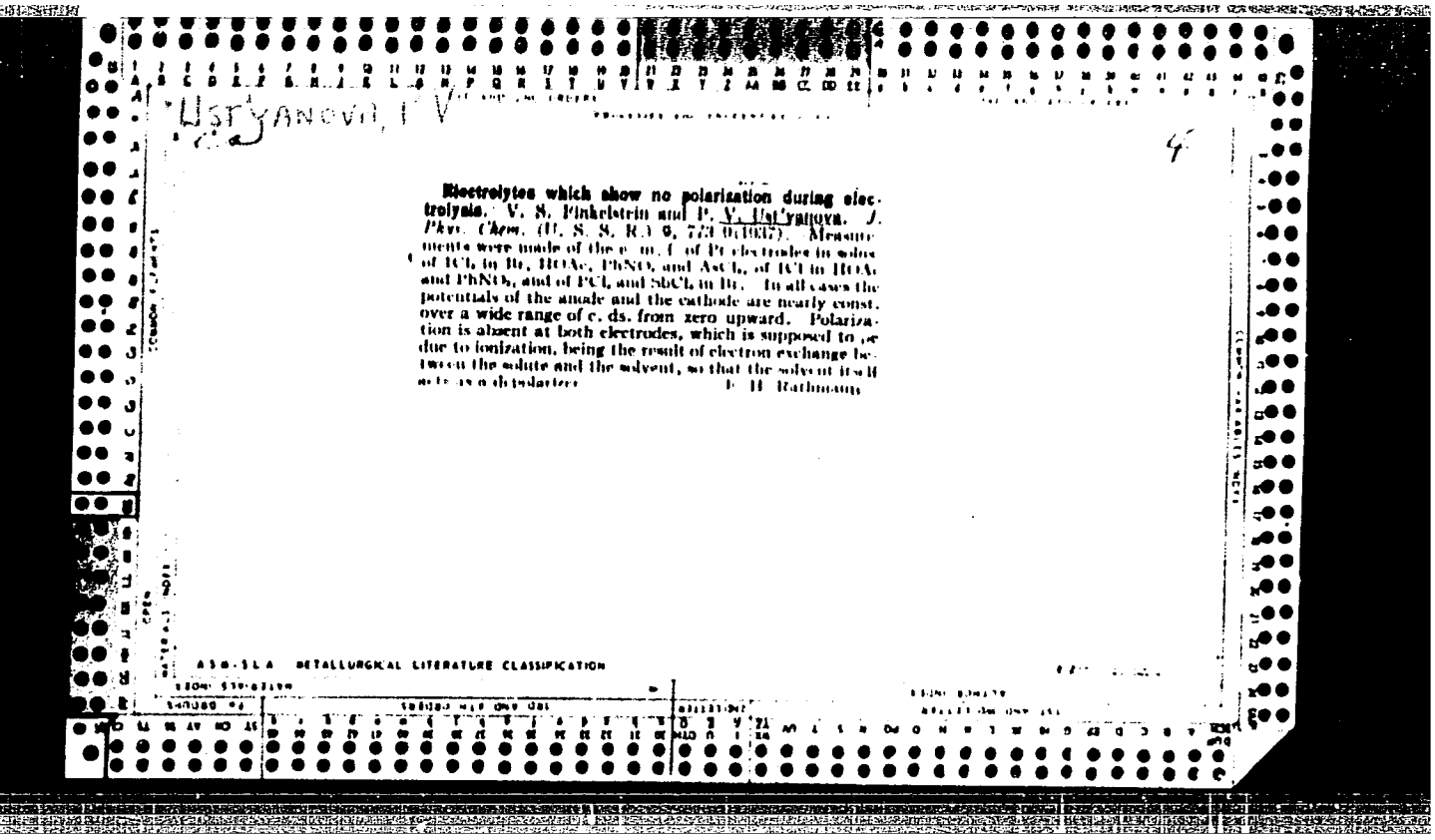
stability of the radiation defects was observed and determined by recording the relation $\log \sigma_T = f(\frac{1}{T})$. Kinetic light characteristics (curves of excitation and drop of photocurrent) were recorded with an ENO-1 oscillograph, and curves of γ excitation (γ drop) were recorded with an EPPV-51 electronic recorder. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 001 OTHER: 000

Card 2/2



Ust'yanova, P. V.

4

Electrolytes which show no polarization during electrolysis. V. S. Pinkelstein and P. V. Ust'yanova. *J. Phys. Chem.* (U. S. S. R.) 9, 773-9 (1937). Measurements were made of the e. m. f. of Pt electrodes in solns. of ICl in Bz, HOAc, PhNO, and AsCl$_3$, of ICl in HOAc and PhNO$_2$, and of PCl$_5$ and SbCl$_5$ in Bz. In all cases the potentials of the anode and the cathode are nearly const. over a wide range of c. ds. from zero upward. Polarization is absent at both electrodes, which is supposed to be due to ionization, being the result of electron exchange between the solute and the solvent, so that the solvent itself [illegible]

D. H. Rathmann

A53-51A METALLURGICAL LITERATURE CLASSIFICATION

USTYANOVA, P.V.

USSR/ Chemistry - General chemistry

Card 1/2 Pub. 116 - 2/25

Authors : Ryss, I. G., and Ustyanova, P. V.

Title : The chemical properties of potassium hydroxotrifluoroborate and tetrafluoro borate

Periodical : Ukr. khim. zhur. 21/1, 6-15, 1955

Abstract : New data are presented about the chemical properties of dissolved BF_3OH' and $B_3F_4O_3OH'$ ions. The data were obtained during potentiometric study of the hydrolysis of the ions. The existence of $BF_2(OH)_2'$ ions in aqueous solutions was established by measurements. The data show that the hydrogen indicator of KBF_3OH solutions does not depend upon the salt concentration, it increases slightly during introduction of boric acid into the solution but increases sharply during the introduction of dissolved fluoride.

Institution : The I.V. Stalin Metalurgical Institute, Faculty of Gen. Chem. Dniepropetrovsk

Submitted : June 30, 1953

Periodical : Ukr. khim. zhur. 21/1, 6-15, 1955

Card 2/2 : Pub. 116 - 2/25

Abstract : It is also pointed out that the introduction of glycerin which binds one of the hydrolysis products - boric acid - increases the acidity of the solution. Nine references : 4 USSR, 3 USA, 1 French and 1 German (1894-1952). Tables; graphs.

FRAY, V.; USTYANOVICHOVA, A.

Behavior of a borate ion in a solution. Zhur. fiz. khim. 37 no.5:1153-1156 My '63. (MIRA 17:1)

1. Kafedra neorganicheskoy khimii Karlov universitet, Praga Chekhoslovakiya.

USTYANSKIY, Z.S.; BRAGINA, M.N.

Dielectric properties of VNP brand molded materials. Plast.-massy no.8:17-18 '62. (MIRA 15:7)
(Plastics--Electric properties)
(Electric insulators and insulation)

1. UST'YANTSEV, A.

2. USSR (600)

4. Coal Mines and Mining

7. Communists in the struggle for a continuous work schedule. Mast. ugl. 1 no.7, 1952

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

BELYAYEV, V.; BOCHAROV, V.; RUDAK, Ye.; UST'YANTSEV, A.

Potentialities for increasing labor productivity in the copper mines of the Urals. Biul. nauch. inform.: trud i zar. plata no.7:5-12 '59. (MIRA 12:10)

(Ural Mountain region--Copper mines and mining)

USTYASHVILI, A. D.

On results of Tskhaltubo baths in gynecologic diseases.
Sovet. med. no.8:29 Aug 1951. (CLML 20:11)

1. Professor. 2.Tbilisi.

UST'YANTSEV, A.I., inzh.

Economic estimate of ore losses in the ground. Izv. vys. ucheb. zav.; gor. zhur. 7 no.11:43-46 '64. (MIRA 18:3)

1. Sverdlovskiy gornyy institut imeni Vakhrusheva. Rekomendovana kafedroy ekonomiki i organizatsii gornogo proizvodstva.

RATNER, M.L., kandidat tekhnicheskikh nauk; UST'YANTSEV, A.V., inzhener.

Statistical control in the production of standards. Vest.mash. 27 no.7:64-65 Jl '47. (MLRA 9:4)
(Standards, Engineering--Quality control)

UST'YANTSEV, A. V.

Increasing Labor Productivity in Machine Building (Voprosy povysheniya proiavoditel'nosti truda v mashinostroenii) Gosudarstvennoye nauch-tekh. izdat. mashinostroitel'. literaturey, Moscow, 1957. 511 pp.
(Table of Contents authors below)

This collection presents a comparative tech. and economic analysis of most effective methods and industrial processes forkobtaining high labor productivity in machine building. Output may be stepped up by further standardization of machine tools, materials, and production methods; drawing on unused potentials. Covers all stages of planning and production as performed in modern plants of USSR, actual experience, and new methods are discussed.

UST'YANTSEV, A. V., "Mechanization and Automation in Machine-Tool Plants," p. 428.

KORMYAKOV, V. (Vladivostok); UST'YANTSEV, L. (Vladivostok)

Rebuilding of transistors. Radio no.5:41 My '63. (MIRA 16:5)
(Transistors--Maintenance and repair)

UST'YANTSEVA, Mariya Petrovna; TYUMENEVA, S.T., inzh.red.; FREGER, D.P., tekhn.red.

[Quantitative determination of copper and steel by means of steeloscopes] Kolichestvennoe opredelenie medi v stali posredstvom stiloskopa. Leningrad, 1956. 4 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Informatsionno-tekhnicheskii listok, no.3. Kontrol' kachestva produktsii) (MLRA 10:12)
(Steel--Spectra)

BESSONOV, A.F.; USTYANTSEV, [illegible].

Effect of the surface state of particle layers on the sintering process of magnesite powders. Porosh. met. 5 no.5:20-23 My '65. (MIRA 18:5)

1. Vostochnyy nauchno-issledovatel'skiy i proyektnyy institut ogneuporney promyshlennosti, Sverdlovsk.

L 1253-66 EWP(e)/EWT(m)/T WH
ACCESSION NR: AP5021510 UR/0131/65/000/008/0030/0034
666.76.0012

AUTHOR: Bessonov, A. F.; Ust'yantsev, V. M.

TITLE: Investigation of phase changes in the systems of $MgO-Fe_2O_3$ and $MgO-FeO(Fe_2O_3)$ during heating and cooling in air

SOURCE: Ogneuproy, no. 8, 1965, 30-34

TOPIC TAGS: refractory compound, magnesium oxide, iron oxide, electric resistance, phase analysis, solid kinetics

ABSTRACT: The article considers phase changes and chemical interactions under nonequilibrium conditions, that is, under the actual operating conditions of these refractory materials. A special apparatus permitted simultaneous measurement of electrical resistance and X-ray analysis of the samples at different temperatures. The compositions of the samples were: 90% MgO and 10% Fe_2O_3 and 90% MgO and 10% FeO. The samples were prepared in tablet form 3-4 mm thick by mixing finely ground powders, with subsequent pressing. The samples were placed in a high temperature chamber which permitted heating to 1500 C, with

Card 1/2

L 1253-66
ACCESSION NR: AP5021510

attachment of a URS-501 diffractometer. They were heated at a rate of 0.17 degrees/sec with practically no temperature gradient across the sample. The phase composition of each sample was studied by continuous X-ray photography in the angular range of 20°-27°30'. For some samples complete X-ray photos were taken over the angular range of 11-41°. The same measurements were made with cooling of the samples and subsequent reheating. Results for both types of samples in the given temperature interval are shown graphically. Basically, the article gives a qualitative picture of the kinetics of phase changes in the systems $MgO-Fe_2O_3$ and $MgO-FeO(Fe_2O_3)$ at atmospheric air pressure and with continuous heating to 1400 C. In particular, it is shown that magnesioferrite under these conditions forms at 290 C. Orig. art. has: 8 figures

ASSOCIATION: Vostochnyy institut ogneuporov (Eastern Institute for Refractory Materials)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM, IC

NR REF SOV: 006 OTHER: 005

Card 2/2

AUTHORS: Bessonov, A. F.; Ustiyantsev, V. M.

TITLE: A device for the simultaneous high temperature plotting of curves of electrical conductivity and x-ray patterns of solid oxides

SOURCE: Zavodskaya laboratoriya, v. 31, no. 5, 1965, 620-621

TOPIC TAGS: x ray diffraction study, oxide, electric conductivity, high temperature instrument, measuring apparatus / 3G 1 audio frequency generator, RNSH 55 autotransformer, SNE 220 0.75 voltage regulator, PSR 01 automatic potentiometer, PP potentiometer, [illegible] goniometer, [illegible]

ABSTRACT: A device was developed for providing simultaneous x-ray analysis and electrical conductivity measurements [illegible] of these measurements at high temperatures has been eliminated. [illegible] conductivity measurements are made with a standard Wheatstone bridge (Fig. 1 in the Enclosure) in which R_3 is the regulated resistance for determining the resistance R_x of the specimen, and R_4 is the standard resistance for periodically

Card 1/2

calibrating the bridge. A capacitor box (1) is connected to one leg. A 3G-1 audio frequency generator (1000-5000 cps) in one diagonal prevents pre-electrode polarization. An oscillograph (2) in the other bridge diagonal serves as a zero indicator. A VNSH-55 autotransformer (3) controls the heater [illegible] high temperature examiner. [illegible]

[illegible] temperature measurements. [illegible] Pt-PtRh [illegible] ity measurement. The furnace is surrounded by lightweight bricks and its ends are sealed with thermal insulation disks. The x-ray beam slits are covered with nickel foil. There are two slit variations: the side slit permitting an angular [illegible] 82° with URS-50IM. In test measurements, in addition to the Pt-PtRh thermocouple, temperatures were controlled by studying the x-ray patterns of platinum, which vary with temperature in a known way. Test measurements gave excellent results.

L 53592-65
ACCESSION NR: AP5012504

Orig. art. has: 2 figures.

ASSOCIATION: Vostochnyy nauchno-issledovatel'skiy i proyektnyy institut ogneupornoy promyshlennosti (Eastern Scientific Research and Design Institute of the Refractory Industry)

SUBMITTED: 00 ENCL: 01 SUB CODE: TD, LM

NO REF SOV: 003 OTHER: 000

Card 3/4

BERSONOV, A.F.; STREKALOVSKIY, V.N.; NEUYMIN, A.D.; USTYANTSEV, V.M.

Uranium dioxide oxidation studied by the high-temperature [illegible] electric conductivity, X-ray diffraction, and contact-angle wetting. Zhur.fiz.khim. 39 no.7:1702-1711 Jl '65. (MIRA 18:8)

L 1657-66 EWT(m)/EPF(n)-2/EWG(m)/EWP(t)/EWP(b) IJP(c) RDM/JD/WW/JG
ACCESSION NR: AP5021417 UR/0076/65/039/008/1932/1937
541.13+541.17

AUTHOR: Bessonov, A. F.; Ust'yantsev, V. M.

TITLE: Study of certain oxide systems with the aid of a high-temperature device for the simultaneous measurement of the electrical resistance and x-ray diffraction analysis of samples

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 8, 1965, 1932-1937

TOPIC TAGS: electrical resistance measurement, x-ray diffraction analysis, zirconium oxide, phase analysis

ABSTRACT: The properties of ZrO_2 - MgO and ZrO_2 - Y_2O_3 compositions (taken in the ratio of 73:25 and 93:7 mole % respectively), which were pressed and sintered at 1600°C, were studied as a function of temperature by means of a novel device which permitted the simultaneous measurement of electrical resistance and x-ray diffraction analysis. A wiring diagram of the device is given. The phase transformations of ZrO_2 were investigated, and the electrical resistance method was found to be more sensitive than the x-ray method in the identification of the phases formed during

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L 1657-66

ACCESSION NR: AP5021417

heating or cooling, since it detected their formation earlier and was sensitive to their presence for a longer time. Furthermore, inflections occurring at 550°C and 490°C on the resistance curve had no equivalents in the x-ray studies. It is concluded that the resistance method is highly sensitive to slight structural changes arising under the influence of external factors such as temperature, medium, pressure, or chemical reactions. The two all-important methods of x-ray diffraction and electrical resistance measurement can thus be made to supplement each other in a highly useful manner. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Vostochnyy nauchno-issledovatel'skiy i proyektnyy institut ogneupornoy promyshlennosti (Eastern Scientific Research and Planning Institute of the Refractory Industry)

SUBMITTED: 14Apr64 ENCL: 00 SUB CODE: GC, IC

NO REF SOV: 012 OTHER: 005

Card 2/2 DP

BESSONOV, A.F.; USTYANTSEV, V.M.; YAROSLAVTSEV, A.S.

Investigating the kinetics of phase transformations in a specimen of magnesium and copper oxides. Izv. vys. ucheb. zav.; tsvet. met. 8 no.5:49-53 '65. (MIRA 18:10)

1. Ural'skiy politekhnicheskiy institut, kafedra metallurgii tyazhelykh tsvetnykh metallov i Vostochnyy institut ogneuporov.

BESSONOV, A.F.; UST'YANTSEV, V.M.

Investigating phase transformations in systems MgO - Fe_2O_3 and MgO - FeO(Fe_2O_3) during their heating and cooling in the open air. Ogneupory 30 no.8:30-34 '65. (MIRA 18:8)

1. Vostochnyy institut ogneuporov.

L 06293-67 EWT(m)/EWP(e)/EWP(t)/ETI IJP(c) AT/WH/JD/WW/JG/GD

ACC NR: AT6027149 (N) SOURCE CODE: UR/0000/65/000/000/0217/0220

AUTHOR: Polezhayev, Yu. M.; Ust'yantsev, V. M.

ORG: none

TITLE: Phase transformations of zirconium dioxide separating during the thermal decomposition of $NaHZrSiO_5$ (effect of prior pressing)

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Issledovaniya v oblasti khimii silikatov i okislov (Studies in the field of chemistry of silicates and oxides). Moscow, Izd-vo Nauka, 1965, 217-220

TOPIC TAGS: zirconium compound, phase transition, refractory

ABSTRACT: A study of the phase transformations of ZrO_2 present in a mixture with $Na_2ZrSi_2O_7$ was carried out with aid of high-temperature x-ray phase analysis on a URS-50I diffractometer provided with a heating attachment. The heating rate was 8 deg/min. It was found that the low-temperature tetragonal ZrO_2 which separates during the thermal decomposition of $NaHZrSiO_5$ on heating changes directly into the high-temperature tetragonal form, and the latter changes into the monoclinic form on cooling. As the pressure of the prior pressing of the specimens rises, the temperature at which these transformations begin drops. It is concluded that polymorphic transformations of ZrO_2 in refractories can be prevented if it is mixed with a suitable material having a small coefficient of thermal expansion and good sintering properties, such as

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L 06293-67

ACC NR: AT6027149

$NaHZrSiO_5$. Orig. art. has: 2 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 05Oct64/ ORIG REF: 003/ OTH REF: 004

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L 10880-66 EWP(e)/EWT(m)/EPF(n)-2/T/EWP(t)/EW2(b)/EWA(c) IJP(c) JD/WW/JG/WH

ACC NR: AT5028247 SOURCE CODE: UR/2631/65/000/006/0123/0130

AUTHOR: Strekalovskiy, V. N.; Bessonov, A. F.; Ust'yantsev, V. M.; Burov, G. V.

ORG: Institute of Electrochemistry, Ural Branch, Academy of Sciences SSR (Akademiya nauk SSR, Ural'skiy filial, Institut Elektrokhimii)

TITLE: High-temperature x-ray diffraction study of oxide ceramics

SOURCE: An SSSR. Ural'skiy filial. Institut elektrokhimii. Trudy, no. 6, 1965. Elektrokhimiya rasplavlennykh solevykh i tverdykh electrolitov (Electrochemistry of fused salts and solid electrolytes), 123-130

TOPIC TAGS: x ray diffraction analysis, oxide ceramic, cerium compound, strontium compound, zirconium compound, yttrium compound, neodymium compound

ABSTRACT: A description is given of high-temperature attachments for x-ray diffraction studies with photo- and ionization recording of the diffraction pattern (at temperatures between 20 and 1500C). Examples of high-temperature x-ray analyses are given for sintered oxide materials: CeO_2, CeO_2-SrO, ZrO_2-Y_2O_3, ZrO_2-Nd_2O_3, ZrO_2-CaO. The transitions occurring in ZrO_2-Nd_2O_3 and ZrO_2-Y_2O_3 on heating and cooling are determined. The x-ray coefficients of thermal expansion of these samples are found to be lower than the dilatometric ones. It is postulated that the difference in the change of the lattice constant of CeO_2 as

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L 10880-66

ACC NR: AT5028247

studied in air and vacuum is due to the formation of a solid solution of Ce_2O_3 in CeO_2 in a vacuum. Orig. art. has: 8 figures and 1 table.

SUB CODE: 07, 11/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 011

Card 2/2

RESSONOV, A.F.; UST'YANTSEV, V.M.

Study of some oxide systems by means of a high-temperature plant for the simultaneous measurement of electric resistance and the X-ray diffraction analysis of samples. Zhur. fiz. khim. 39 no.8:1932-1937 Ag '65. (MIRA 18:9)

1. Vostochnyy nauchno-issledovatel'skiy i proyektnyy institut ogneupornoy promyshlennosti.

STRELKALOVSKIY, V.N.; BESSONOV, A.F.; UST'YANTSEV, V.M.; BUROV, G.V.

High temperature X-ray diffraction study of oxide ceramics. Trudy Inst. elektrokhim. UFAN SSSR no.6:123-130 '65.
(MIRA 18:11)

L 36505-66 EWT(m)/EWP(j)/T WW/JW/WE/RM

ACC NR: AP6017880 SOURCE CODE: UR/0062/66/000/005/0930/0932

AUTHOR: Ustynyuk, L. A.; Shevelev, S. A.; Faynzil'berg, A. A.

ORG: Institute of Organic Chemistry im. N. D. Zelinskiy, Academy of Sciences, SSSR (Institut organicheskoy khimii Akademii nauk SSSR)

TITLE: Effect of acylating agents on salts of 1,1-dinitroalkanes

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 5, 1966, 930-932

TOPIC TAGS: acylation, organic nitro compound, ethane, propane

ABSTRACT: The reactions of salts of gem-dinitroethane with the acylating agents acetyl chloride, acetic anhydride, acetyl nitrate, benzoyl chloride, methyl chloroacetate, and p-toluenesulfonyl chloride were all found to produce dinitroethyl ethylnitrolate $CH_3C(NO_2)=N-O-C(NO_2)_2CH_3$ (I). Its yield varied over a wide range with the conditions of the reaction, i.e., the nature of the solvent and cation, proportion of the reactants, and temperature. Thus, in the reaction of the potassium salt of gem-dinitroethane with acetyl chloride in polar solvents (acetone, acetonitrile, dimethylformamide), the yield of (I) was ~30%, but in solvents of low polarity, where the potassium salt is practically insoluble, (I) was not formed at all. If however the triethylamine salt of gem-dinitroethane, which is soluble in all these solvents, is introduced into the reaction, the formation of (I) in substantial quantities is always

UDC: 542.91 + 547.232

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L 36505-66

ACC NR: AP6017880

observed. The effect of acylating agents, particularly acetyl nitrate, on salts of 1,1-dinitropropane was also studied. Like 1,1-dinitroethane, 1,1-dinitropropane under these conditions was found to yield a product of autoxidation, dinitropropyl propylnitrolate $C_2H_5C(NO_2)=N-OC(NO_2)_2C_2H_5$.

SUB CODE: 07/ SUBM DATE: 08Oct65/ ORIG REF: 001/ OTH REF: 002

Card 2/2 MLP

PEREVALOVA, E.G.; USTYNYUK, Yu.A.; NESMEYANOV, A.N.

Reactivity of compounds containing a ferrocenylmethyl group.
Report No.1: Hydrolytic cleavage of quaternary ammonium salts.
Izv. AN SSSR. Otd.khim.nauk no.6:1036-1045 Je '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Ammonium compounds) (Hydrolysis) (Ferrocene)

PEREVALOVA, E.G.; USTYNYUK, Yu.A.; NESMEYANOV, A.N.

Reactivity of compounds containing a ferrocenylmethyl group. Report No.2: Reduction of quaternary ammonium salts containing a ferrocenylmethyl radical by sodium amalgam according to Emde reaction. Izv. AN SSSR. Otd.khim.nauk no.6:1045-1049 Je '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Ammonium compounds) (Ferrocene) (Reduction, Chemical)

[redacted], A.A.; SEDOV, V.V.; USTYUGOV, G.P.; [redacted], R.I.

Separation of sulfur, selenium, and tellurium. Trudy IREA no.35:111-115 '61. (MIRA 14:10)
(Sulfur)
(Selenium)
(Tellurium)

USTYUGOV, N., inzh.

"Nedra-P" transmitter. Radio no.9:30-32 S '65.
(MIRA 19:1)

L 14273-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AT6003841 SOURCE CODE: UR/2865/65/004/000/0070/0074

AUTHOR: Tardov, V. M.; Ustyushin, B. V.; Orlov, S. F. 32 B+1

ORG: none

TITLE: The problem of human resistance to briefly-acting angular accelerations of large magnitudes 2,55

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 70-74

TOPIC TAGS: space physiology, EKG, cardiovascular system, EEG, man, vestibular apparatus, vestibular effect, biologic acceleration effect, psychologic stress

ABSTRACT: The effect of ± 30— 90 G/sec^2 was studied using 6 healthy male subjects 22-25 yr. of age. A special device constructed by V. V. Dobrynin was used which consisted of a chair, power shock absorbers with a stress system, an actuating and automatic braking system, and counters which registered rotation duration, turning angle, and tangential force. The actuating and braking system permitted positive and negative angular accelerations with a duration of 0.2 sec. The magnitude of acceleration

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in 56 tests was gradually increased from 30 G/sec^2 to 90 G/sec^2. Rotation took place around the longitudinal axis of the body.

The following physiological indices were studied: electronystagsmogram, EKG, arterial pressure, respiration rate, and EEG. Subjective illusions during rotation were characteristic of those experienced when the semi-circular canals are stimulated.

The cardiovascular system reacted sharply to short-term rotation, reflected in an increase in pulse rate after the chair had been stopped. In some cases, after exposure to +30—90 G/sec, the rate was 125 beats/min, quickly returning to normal and sometimes subnormal levels. Systolic and diastolic pressure was increased. EKG's showed a parallelism with the above indices: The QT interval shortened as pulse rate increased, returning to normal 10—15 min later. The systolic EKG index increased by 10—15% as pulse rates increase, but quickly returned to normal. Spike voltage was unaltered in all tests. Like cardiac activity, the respiration rate also increased immediately after exposure, quickly returning to normal levels.

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ACC NR: AT6003841

An examination of EEG's showed an increase in the amplitude and content of high-frequency rhythms (greater than 20 cps) immediately after exposure to rotation. This reflected a predominance of excitatory processes taking place in the CNS at this time.

It is observed that the reactions of the organism to short-term rotations were not specific and were attributed to neuropsychic responses, i. e., to emotional strains such as those encountered in catapult tests. This was substantiated in a test in which a subject was given a false command that the chair was ready to revolve and did not. The same physiological reactions as those observed during rotation occurred, though not to as great a degree. Orig. art. has: 5 figures. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none

Card 3/3

RUDAKOV, Viktor Vasil'yevich, kand. tekhn. nauk; USTYUZHANIN, Gennadiy Anatol'yevich, inzh.; SHTEYNBOK, G.Yu., inzh., ved. red.; SHVETSOV, G.V., tekhn. red.

[Electronic amplifier with a multiplying device for servo drive systems]Elektronnyi usilitel' s mnozhitel'nym ustroistvom dlia sistem slediashchego privoda. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 23 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 42. No.P-58-69/7) (MIRA 16:3)

(Amplifiers, Electron-tube) (Servomechanicsms)

DANILOV, S.N.; TIKHOMIROVA-SIDOROVA, N.S.; USTYUZHANIN, G.Ye.; YEFIMOVA, G.A.

Cleavage of an anhydride ring in dianhydroxylitol by amines. Zhur.ob.khim. 32 no.11:3614-3618 N '62. (MIRA 15:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Xylitol) (Anhydrides) (Amines)

USTYUZHANIN, G.Ye.; YEFIMOVA, G.A.; KOGAN, E.M.; TIKHOMIROVA-SIDDROVA, N.S.; DANILOV, S.N.

Cleavage of an anhydride ring in dianhydroxylitol and its derivatives by hydrogen chloride in glacial acetic acid. Zhur.ob.khim. 32 no.11:3617-3621 N '62. (MIRA 15:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Xylitol) (Anhydrides) (Hydrochloric acid)

USTYUZHANIN, G.Ye.; KOGAN, E.M.; TIKHOMIROVA-SIDOROVA, N.S.; DANILOV, S.N.

New data on the structure of xylitol dianhydride. Zhur.ob.khim. 32 no.11:3622-3627 N '62. (MIRA 15:11)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Xylitol) (Anhydrides)

USTYUZHANIN, G.Ye.; TIKHOMIROVA-SIDOROVA, N.S.; DANILOV, S.N.

Hexitol anhydride with with a β-ring-1,3-anhydro-2,4-methylene-5,6-dimethyl-D-sorbitol. Zhur.ob. khim. 33 no.2:453-457 F '63. (MIRA 16:2)

1. Institut vysokomolekulyarnykh soyedineniy AN SSSR.
(Sorbitol) (Hexitols)