APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACCESSION NR: AP4043644 S/0056/64/047/002/0659/0666

AUTHORS: Gol'danskiy, V. I.; Ivanova, A. V.; Prokop'yev, Ye. P.

TITLE: On positron annihilation in alkali-metal hydrides

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 659-666

TOPIC TAGS: positron reaction, annihilation reaction, half life, ionic crystal, alkali metal, correlation statistics, hydride, halide

ABSTRACT: In view of failures of earlier attempts to explain the long-lived component of positron annihilation in ionic crystals, the authors employed the self-consistent field method to develop a new treatment of the time distribution of the annihilation radiation in hydrides of alkali metals. It is shown that the presence of two components in the lifetime spectrum of the positrons in the hydrides is due to the annihilation from different excited levels of the system e^+H^-. The possibility of existence of a third component,

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ACCESSION NR: AP4043644

corresponding to annihilation from the ground state, is predicted. The calculated curves of the angular correlation of gamma quanta in the case of two-photon annihilation for the ground and first-excited states of e^+H^- turn out to be quite close to those obtained by experiment. This also offers evidence in favor of the proposed mechanism of annihilation. It is pointed out in conclusion that the proposed interpretation of the positron lifetime spectrum is applicable not only to alkali metal hydrides but to other ionic crystals, such as alkali-halide ones. The latter should include a third component corresponding to annihilations from the ground state. "The authors thank A. S. Kompaneyets for useful discussions and valuable hints, and to A. N. Ivanova of the mathematical division, for developing a procedure for numerical integration of the equations, as well as to A. I. Prikhozhenko of the same division for carrying out the computation on the electronic computer. Orig. art. has: 2 figures and 11 formulas.

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

ACCESSION NR: AP4043644

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 27Feb64 ENCL: 00

SUB CODE: NP NR REF SOV: 009 OTHER: 007

Card 3/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 11086-65 EWT(m) DIAAP/AFWL/SSD/ESD(t)

ACCESSION NR: AP4046630 S/0181/64/006/010/3118/3123

AUTHORS: Arifov, P. U.; Gol'danskiy, V. I.; Sayasov, Yu. S. (5)

TITLE: Determination of the momentum distribution of annihilating electron-positron pairs from the gamma-quantum angular distribution 19

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 3118-3123

TOPIC TAGS: annihilation reaction, electron, positron, angular momentum distribution, gamma quantum distribution

ABSTRACT: It is shown that the formula customarily used to reconstitute the momentum distribution from the γ-quantum angular correlation is based on assumptions that are too approximate. The author consequently derives a relation between the density $\rho(p)$ of the momentum distributions of e^+e^- pairs and the coincidence counting rate I (as a function of angle), in which correct account is taken of the geometry of the experiment and of the variability of the

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L 11086-65
ACCESSION NR: AP4046630

probability that the angles of the emitted annihilation γ quanta can be correctly registered by the detectors. The conditions under which the new formulas give results that differ appreciably from the old formula are indicated. It is also shown that the new formulas can also be used directly to determine the momentum distribution of slow neutral pions from the angular correlation of the γ quanta produced by their decay. Orig. art. has: 2 figures and 11 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moscow (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 15May64 ENCL: 00

SUB CODE: NP NR REF SOV: 002 OTHER: 003

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 11433-65 EWT(1)/EWT(m)/T/EEC(b)-2/EWA(m)-2 IJP(c)/ASD(a)-5/APWL/
AS(mp)-2
ACCESSION NR: AP4048404 S/0181/64/006/011/3301/3306

AUTHORS: Gol'danskiy, V. I.; Prokop'yev, Ye. P.

TITLE: On the annihilation of positrons in alkali-halide crystals

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3301-3306

TOPIC TAGS: alkali halide crystal, positron annihilation, polaron, crystal lattice defect

ABSTRACT: The authors consider the annihilation of positrons from polaron states in alkali-halide crystals, within the framework of the Pekar polaron theory (S. I. Pekar, Issledovaniya po elektronnoy teorii kristallov [Investigations on the Electron Theory of Crystals], GITTL, M-L, 1951). They calculate the lifetimes and momentum distributions of the centers of gravity of the annihilating pairs in the case of positron annihilation by polaron states in an "ideal" alkali-halide crystal, and list the additional positron annihilation

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L 11433-65
ACCESSION NR: AP4048404

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possible in crystals with defects. The contributions made to the short- and long-lived components of the annihilation spectrum (with lifetimes ~2 and ~5 x 10^{-10} sec, respectively) are found to be affected by annihilation from the ground and excited polaron states, respectively. "The authors thank A. S. Kompaneyets and A. V. Ivanova for a discussion of the results and for valuable remarks." Orig. art. has: 8 formulas and 2 tables.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR, Moscow (Institute of Chemical Physics AN SSSR)

SUBMITTED: 26May64 ENCL: 00

SUB CODE: SS NR REF SOV: 003 OTHER: 009

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 40010-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EWG(v)/EWP(v)/RPL/EWP(j)/T/EWA(b)/EWA(1) Pc-4/Pe-5/Pr-4/Ps-4/Pu-4/Peb RPL GG/RM/WW/GS

ACCESSION NR: AT4049836 S/0000/64/000/000/0008/0012

AUTHOR: Gol'danskiy, V. I.; Gul', V. Ye.; Yegorov, Ye. V.; Il'berg, G. A.; Mikhlin, V. B.; Kayevskiy, V. G.

TITLE: A new radiochemical method for preparing graft copolymers and their possible uses for increasing the bond strength between rubber and fabric

SOURCE: Khimicheskiye svoystva i modifikatsiya polimerov (Chemical properties and the modification of polymers); sbornik statey. Moscow, Izd-vo Nauka, 1964, 8-12

TOPIC TAGS: graft copolymer, bond strength, rubber fabric laminate, neutron irradiation, polycaproamide, elastomer, polymer impregnation, Capron fabric

ABSTRACT: Utilizing the localized effect of neutron irradiation, a new method was developed for obtaining graft copolymers; this was based on the irradiation of emulsions containing both polymer components and a lithium (boron) compound by a flow of thermal neutrons. The graft copolymers tested were obtained by irradiation, in a nuclear reactor, of emulsions made from a mixture of polycaproamide in formic acid, containing a Li compound, with solutions of elastomers in o-xylene. Infrared spectra showed the presence of a radiochemical interaction between the elastomer molecules and polycaproamide with the formation of a graft copolymer.

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The composition of the resin mixture is tabulated. The resin coating was 0.2 0.02 mm thick. The vulcanized samples were tested on a Schopper apparatus. Tabulated data show that impregnation of Capron fabric with a non-irradiated emulsion decreases the bond strength between rubber and fabric by 30-40%, due to a decrease in the mechanical adhesion and the low cohesive strength of the adhesive. The use of the impregnating solution containing graft copolymer increases the bond strength by 45-60% as compared to the initial value. By combining impregnation of the fabric with a solution of epoxyamide resin (No. 89) and impregnation with a solution of an elastomer and a graft copolymer, the bond strength between the rubber and the fabric was almost doubled as compared to the strength obtained by impregnating only with epoxyamide, and increased four times as compared to materials based on nonimpregnated Capron fabric. Other modifications of the method of localized neutron irradiation permit the bond strength to be increased to 4.1 kg/cm, this value being limited by the cohesion of the rubber coating. This variant of the method will be described in a subsequent publication. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Chemical physics Institute, AN SSSR); Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow fine chemical technology institute)

SUBMITTED: 18Apr62 ENCL: 00 SUB CODE: OC, MT
Card 2/2 NO REF SOV: 006 OTHER: 001

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY, Vyacheslav Iosifovich; ASTAKHOVA, Valentina Grigor'yevna, zhurnalist; GAROVA, K.K., red.

[Miracles of transmutation] Chudesa prevrashcheniĭ. Moskva, Znanie, 1960. 31 p. (Novoe v zhizni, nauke, tekhnike. XII Seriia: Estestvoznanie i religiia, no.9) (MIRA 13:11)

1. Chlen-korrespondent AN SSSR (for Gol'danskiy).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY, V. I.

Results of a [illegible] Conf., [illegible] anniversary of the discovery of artificial radioactivity. Vest. AN SSSR [illegible]: 32-35 [illegible] (MIRA [illegible])

1. Chlen-korrespondent AN SSSR.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DAN[illegible], [illegible], [illegible], [illegible], Ye..

An[illegible] of p[illegible] in [illegible] metal hydrides. Zhur. eksp. i teor. fiz. 47 no.[illegible] [illegible] (MIRA 17:10)

1. [illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 16513-65 EWT(1) IJP(c)/SSD/AFWL
ACCESSION NR: AP5000360 S/0056/64/047/005/1995/1997

AUTHOR: Gol'danskiy, V. I.; Sayasov, Yu. S.

B

TITLE: Resonant annihilation of positrons in collisions with neutral atoms and with molecules

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 5, 1964, 1995-1997

TOPIC TAGS: Annihilation, positron collision, fast annihilation, positron molecule bound state, Dirac annihilation, positron scattering, elastic scattering

ABSTRACT: A quantitative and qualitative interpretation is presented for the anomalous fast annihilation of positrons in polyatomic gases, first reported by D. Paul and L. Saint Pierre (Phys. Rev. Let. v. 11, 493, 1963). The cause for this annihilation is found to be a positron-molecule bound state with a

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L 16513-65
ACCESSION NR: AP500360

binding energy close to 1.0 eV. Since the positron slows down to such an energy within a time much shorter than the Dirac annihilation time, the positron is annihilated by the molecule as a whole in resonant fashion, with a probability much higher than that of the Dirac annihilation. Formulas are presented for the cross section of this annihilation and for the existence of a resonant energy level. It is concluded that to check on this interpretation it would be necessary to observe elastic scattering of slow positrons (~0.1 eV) in those polyatomic gases in which increased annihilation rates are observed. Orig. art. has: 7 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 10Jul64 ENCL: 00

SUB CODE: NP NR REF SOV: 001 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACCESSION NR. AP4025112 S/0020/64/155/003/0636/0639

AUTHOR: Gol'danskiy, V. I. (Corresponding member); Firsov, V. G.; Shantarovich, V. P.

TITLE: Determining the kinetic constants of the interaction between positronium and inorganic ions

SOURCE: AN SSSR. Doklady*, v. 155, no. 3, 1964, 636-639

TOPIC TAGS: chemical kinetics, velocity constant, positronium, radiation chemistry, unpaired electron, interaction constant, annihilation gamma quanta, hydrogen ion, spatial distribution, wave function, quantum leakage, tunnel effect

ABSTRACT: New possibilities for determining the rate constant of very fast chemical processes in a condensed phase have been found in the experiments designed to investigate the chemistry of the positronium (Ps). The resulting experimental data have been divided into two basic groups: substances reacting strongly with Ps and reducing its lifetime, and substances with a small interreaction constant. The first group is further divided into two subgroups, depending on the effect of various additions to the angular correlation of annihilation gamma-quanta. (The experiments in angular correlation were made by

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B. G. Yegiazarov). In the case of high-valence ions, the mentioned interaction amounts to a positronium oxidation. The sub-barrier transition of an electron from a positronium atom to an acceptor may be more probable than the transition from a hydrogen atom since in the case of a positronium the resonance conditions of the electron levels in the initial and final states should be less inflexible inasmuch as the positron, as a light and penetrating particle, can effectively absorb the recoil energy connected with the difference in the level positions. The above data implies the possible utilization of the investigations of the positron annihilation for determining the kinetic constants of fast processes in a condensed phase, and possibly for acquiring additional information on the role of quantum leackages in chemical reactions. "The authors are grateful to V. G. Levich and N. D. Sokolov for their interest in the work and the discussion of the results". Orig. art. has: 5 formulas and 2 tables.

ASSOCIATION: Institut khimicheskoy fiziki, Akademii nauk SSSR (Institute of Chemical Physics, Academy of Science, SSSR)

SUBMITTED: 25Nov63 DATE ACQ: 17Apr64 ENCL: 00
SUB CODE: PH, CH NO. REF.SOV: 005 OTHER: 009

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

[illegible], I.M.; GOL'DANSKIY, V.I.; GO MIN-GAO [Kuo Min-kao]

Kinetics of acetylenic hydrocarbon polymerization initiated by azoisobutyric acid dinitrile. Dokl. AN SSSR 155 no. 4:883-885 Ap '64. (MIRA 17:5)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Gol'danskiy).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACCESSION NR: AP4036726 S/0020/64/156/002/0400/0403

AUTHOR: Gol'danskiy, V. I. (Corresponding member); Makarov, Ye. F.; Stukan, R. A.; Sumarokova, T. N.; Trukhtanov, V. A.; Khrapov, V. V.

TITLE: Characteristics of Mossbauer effect for tin compounds with a coordinate number six

SOURCE: AN SSSR. Doklady*, v. 156, no. 2, 1964, 400-403

TOPIC TAGS: Mossbauer effect, gamma fluorescence, Debye Vallerovskiy factor, Mossbauerian atom, polymer crystal, crosslink bond, quadrupolar splitting, chemical displacement, tin compound, ionicity, crystal structure

ABSTRACT: The authors demonstrate that resonant γ-fluorescence without yield (the Debye-Vallerovskiy factor) and the character of the temperature curve essentially depend on the crystal-structure relationship of Mossbauerian atoms. Two tables show the amount of chemical displacement in the compounds investigated and the af' quantities for some of these compounds at temperatures of T = 78°K and 300°K. In addition, a probable structure of SnF_4 is illustrated. The strong quadrupolar splitting in the subject problem is explained by the essential differences in the

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ACCESSION NR: AP4036726

degree of sp^2d ionicity of the hybridized tetravalent Sn-F bond, with horizontal F atoms in a basic polymer crystal forming crosslink bonds between Sn and two other ($p_z d_z 2$) SnF-bonds which evidently are ionic. During the migration from SnF_4 to K_2SnF_6 and Cs_2SnF_6, i.e., from the octahedron with a D_{4k} symmetry to O_h with six (sp^3d^2) Sn-F equivalent bonds, the quadrupolar splitting disappeared. Instead, the increase in the degree of molecular symmetry was accompanied by a strong decrease in the Debye-Vallerovskiy factor (especially at room temperature), while the chemical displacement remained constant. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: Institut khimicheskoy fiziki. Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 31Jan64 DATE ACQ: 03Jun64 ENCL: 00

SUB CODE: OC NO REF SOV: 008 OTHER: 002

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 2129-65 EWT(m) DIAAP/SSD/AFWL
ACCESSION NR: AP4042202 S/0020/64/157/002/0321/0324

AUTHOR: Gol'danskiy, V. I (Corresponding member AN SSSR)

TITLE: Concerning the mechanism of the radioactive decay with proton emission

SOURCE: AN SSSR. Doklady*, v. 157, no. 2, 1964, 321-324

TOPIC TAGS: proton radioactivity, neutron deficient isotope, instantaneous decay, two proton radioactivity, radioactive decay

ABSTRACT: In the neutron-deficient isotopes of many elements, three types of radioactivity have been recently observed, namely, one-proton and two-proton radioactivity, and the emission of delayed protons. Proton emission in decays such as $B^9 \rightarrow p + Be^8$ should not be called "radioactive", because of the extremely short lifetime of about 10^{-18} sec. These decays should be called "instantaneous". Two-proton emitters are discussed which were observed by G.M. Flerov, V.A. Karnaukhov et al.;(Reprint United Inst. Nuclear Studies, D-1570, Dubna, 1964): the "light" one with $T_{\frac{1}{2}}=0.085$ sec and $E_p=1.25$ Mev, and the "heavy" one, with $T_{\frac{1}{2}}=23$ sec and $E_p=2.5$ Mev. The delayed proton

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L 2129-65
ACCESSION NR: AP4042202

emission is attributed in these cases to β^+-decay. An attempt is made to assign the proton emission to the isotopes of Na^{17}, Mg^{20}, or Mg^{21}. However, in a note added in the proof, the assignments were changed in the light of new evidence. Orig. art. has: 1 figure

ASSOCIATION: Institut khmicheskoy fiziki, Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 06Apr64 ENCL: 00

SUB CODE: NP NR REF SOV: 009 OTHER: 015

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 10706-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 AFWL/AS(mp)-2/BAHM(m)/BSD/AFETR/ASD(f)-2
AEDC(a)/SSD/ESD(gs)/ESD(t)/ASD(m)-3 RM

ACCESSION NR: AP4041159 S/0020/64/156/004/0909/0911

AUTHOR: Gol'danskiy, V. I. (Corresponding member AN SSSR); Rochev, V. Ya.; Khrapov, V. V.

TITLE: Mossbauer effect in organic compounds of divalent tin

SOURCE: AN SSSR. Doklady*, v. 156, no. 4, 1964, 909-911

TOPIC TAGS: Mossbauer molecular spectroscopy, Mossbauer effect, organotin compound, divalent organotin compound, diphenyltin, dibutyltin, tetraphenyltin, tetrabutyltin, hexaethyldistannane, dibutyltin oxide, oxidation kinetics, chemical shift, Debye Waller factor, Sn Sn bond, Sn C bond

ABSTRACT: The Mossbauer spectra of the absorbers diphenyltin and dibutyltin were investigated. The spectra were obtained with the absorbers at liquid nitrogen temperatures and the emitter $Sn^{119m}O_2$ at room temperature by the method described by V. I. Gol'dansky, Ye. F. Makarov i dr., DAN, 151, 357 (1963). The values for the chemical shift in these divalent and analgous tetravalent organotin compounds were determined: δ (mm/sec) for $(Ph_2Sn)_n$ 1.42, $(Bu_2Sn)_n$ 1.55, Bu_4Sn 1.35, Ph_4Sn 1.35 and $Et_3Sn\text{-}SnEt_3$ 1.45. The similarities in these values indicate the presence of Sn-Sn and Sn-C bonds. The changes in the Mossbauer spectra of $(Bu_2Sn)_n$ during

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"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"
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its oxidation were recorded. On oxidation a doublet is formed with the spectrum identical to that of $(Bu_2SnO)_n$. The position of the singlet line of the initial $(Bu_2Sn)_n$ coincides with one of the lines of the $(Bu_2SnO)_n$, the Debye-Waller factor for $(Bu_2SnO)_n$ approximately twice that of the unoxidized compound. On oxidation the position and length of one of the lines remains practically unchanged while the length of the second line, proportional to the Mossbauer effect, increases proportionally to the oxidation of the $(Bu_2Sn)_n$. This can be used to construct the kinetic curve for $(Bu_2Sn)_n$ oxidation. The possibility of applying Mossbauer molecular spectroscopy to the investigation of the structure and kinetics of the transformation of organotin compounds is thus confirmed. "The authors thank N. S. Vyazankin for supplying samples of $(Bu_2Sn)_n$ and Et_6Sn and Ye. F. Makarov, R. A. Stukan and V. A. Trukhtanov for discussions." Orig. art. has: 1 table, 1 figure and 2 equations.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physico Academy of Sciences SSSR).

SUBMITTED: 26Feb64 ENCL: 00 SUB CODE: OC, NP

NO REF SOV: 005 OTHER: 004

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 23290-65 EWT(l)/EWT(m)/EPF(c)/EPR/EWP(j)/EWC(t)/T Pc-4/Pr-4/Ps-4/Pab IJP(c)/
ACCESSION NR: AP5000915RPL WW/RM S/0020/64/159/004/0831/0834 41 B

AUTHOR: Belov, V.F.; Vishnyakova, T.P.; Makarov, Ye. F.; Paushkin, Ya. M., Sokolitskaya, T.A.; Stukan, R.A.; Trukhtanov, V.A.; Dol'dansky, V. I. (Corresponding member AN SSSR)

TITLE: The study of ferrocene copolymers by means of the Moessbauer effect

SOURCE: AN SSSR. Doklady, v. 159, no. 4, 1964, 831-834

TOPIC TAGS: ferrocene copolymers, ferroorganic polymer, Moessbauer effect, polymer crosslinking, gamma absorption spectrum

ABSTRACT: The electronic structure of iron in ferrocene polymers and the crosslinking of such polymers was studied from Moessbauer spectra, measuring the dependence of the resonant absorption of γ-ray quanta on the relative velocities of source and absorber. Cobalt-57 served as the source, and the polymers used as absorbers included soluble and insoluble polyferrocenes, polyvinylferrocenes, and copolymers of ferrocene with acetone, naphthalene, alpha-bromonaphtlalene, p-dichlorobenzene, salicylaldehyde, benzaldehyde, and phthalaldehyde. All soluble polymers gave spectra at 80K similar to those of ferrocene and its derivatives, with doublets and approximately 10% Moessbauer effects. At room temperature, the Moessbauer effect of such polymers was smaller than for ferrocene.

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indicating the high movability of ferrocenyl radicals in the polymeric structure. Insoluble polymers showed a marked decrease in quadrupole scattering as compared with ferrocene derivatives or soluble polymers. The spectra showed characteristics observed for ferricene salts and the formation of ferricene cations by electron detachment from iron. Moessbauer effects at room temperature were significantly higher than the effects measured for the soluble polymers. The difference is ascribed to the crosslinked structure and rigidity of molecules in the insoluble polymers. The presence of two doublets in the 80K spectra of insoluble polymers corresponds to the electronic structures of iron in conjugated three-dimensional links and in ordinary ferrocenyl links of the linear polymer fraction. Thus, the Moessbauer spectra can be evaluated to estimate the degree of crosslinking in polymers of ferrocene. By accounting for the concentration of iron in the polymers and for the dimensions of absorbers, the measured values can be reduced to the absolute probability of Moessbauer effects in ferrocene polymers, T_h. The degree of crosslinking is defined by the relation

$$k = \frac{T'_{a_1}}{T_{a_1} + T_{a_2}} \cdot 100\%,$$

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 23290-65
ACCESSION NR: AP5000915

where a_1 refers to linear and a_2 to crosslinked fractions of the polymer. Orig. art. has: 1 table, 1 figure and 2 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Chemical physics institute. Academy of Sciences, SSSR); Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni I.M.Gubkina (Moscow Institute of the Petrochemical and gas Industry)

SUBMITTED: 22Jul64 ENCL: 00 SUB CODE: OC

NO REF SOV: 006 OTHER: 001

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY, Vitaliy Iosifovich; [illegible]; SEMENOVA, V.V., red.

[New events in nuclear physics] Novye sobytiia iadernoi fiziki. Moskva, Izd-vo "Znanie," 1962. 64 p. (Novoe v zhizni, nauke, tekhnike. Ser.: Matematika, kibernetika, no.4) (MIRA 15:5)

1. [illegible] (for Gol'danskiy).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 31821-65 EWT(m)/EWP(t)/EWP(b)/EWA(h) Peb DIAAP/IJP(c) JD

ACCESSION NR AM5002543 BOOK EXPLOITATION S/

Gel'danskiy, Vitaliy Iosifovich

New elements in D. I. Mendeleyev's periodic system (Novyye elementy v periodicheskoy sisteme D. I. Mendeleyeva), 3rd ed., rev. and enl., Moscow, Atomizdat, 1964, 279 p. illus., biblio. Errata slip inserted. 25,000 copies printed.

TOPIC TAGS: periodic table, transuranium element, radiochemistry

TABLE OF CONTENTS [abridged]:

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 31821-65

ACCESSION NR AM5002543

SUBMITTED: 19Jun64

SUB CODE: GC, IC

NO REF SOV: 014

OTHER: 019

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY,V.I.; KUZNETSOV,B.G.,prof.; MIGDAL,A.B.; FRANK,I.M.; CHERNOV, A.G.; FAYNBOY,I.B.,red.

[The constitution of matter; first talk] Stroenie veshchestva; beseda pervaia. [By] V.I.Gol'danskii i dr. Moskva, Izd-vo "Znanie," 1964. 39 p. (Novoe v zhizni, nauke, tekhnike. IX Seriia: Fizika, matematika, astronomiia, no.5) (MIA 17:5)

1. Chleny-korrespondenty AN SSSR (for Gol'danskiy, Migdal, Frank).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 58456-65 EWT(l) Peb DIAAP/EJP(c) 27
ACCESSION NR: AP5013669 22 UR/0386/65/001/001/0031/0036
B

AUTHOR: Gol'danskiy, V. I.; Trukhtanov, V. A.; Davisheva, M. N.; Belov, V. F.

TITLE: Super-exchange induction of magnetic fields at the nuclei of nonmagnetic atoms

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 1, 1965, 31-36.

TOPIC TAGS: Mossbauer effect, tin, yttrium iron garnet, exchange induction, Gamma resonance

ABSTRACT: The authors report the experimental observation of indirect exchange induction of magnetic fields at nuclei of nonmagnetic Sn^{119} atoms introduced into an iron-garnet structure with general chemical formula $Y_{3-x}Ca_xSn_xFe_{5-x}O_{12}$. The ferrite was prepared by the usual technique of sintering the component oxides. Investigations with the aid of nuclear gamma resonance (Mossbauer effect) yield, for example for a sample with $x = 0.25$, a distinct hyperfine magnetic splitting of the ground and first excited states of the Sn^{119} nuclei. The interaction between the

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L 58456-65

ACCESSION NR: AP5013669

4

Sn ions and the magnetic iron ions is apparently produced by the mechanism of indirect exchange via the oxygen ions, and such an indirect exchange induces at the tin nuclei rather large magnetic fields, exceeding 200 kOe at $t = -196C$. The fact that there is no chemical shift of the center of gravity of the spectrum relative to the $Sn^{119}O_2$ source is evidence against the direct interaction of the tin and iron atoms. The gamma-resonance spectrum for iron (obtained with a Co^{57} source in chromium) has a fine structure typical of the two sublattices of yttrium iron garnet, with two values of magnetic fields at the iron. With increasing temperature the magnetic field at the Sn^{119} nuclei decreased simultaneously with the decreasing field at the Fe^{57} nuclei and disappeared completely when the iron ions went over into the paramagnetic state. The conductivity was quite small and increased with increasing temperature, whereas the magnetic field on the iron and tin nuclei increased at the same time. The magnetic moment of the first excited state of Sn^{119}, calculated from the obtained nuclear gamma-resonance spectra, is 0.67 ± 0.01 nuc. magnetons. "The authors are grateful to Yu. M. Kagan for a very useful discussion, to Ye. F. Makarov for help with the work, to S. S. Kurochkin for the use of the 2048-channel analyzer, and to Ye. L. Frankevich for help with measuring the conductivity of the samples. Orig. art. has: 2 figures.

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L 58456-65
ACCESSION NR: AP5013669

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 15Feb65 ENCL: 00 SUB CODE: GS, NP

NR REF SOV: 001 OTHER: 006

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 22560-65 EWT(1)/EEC(t) Peb IJP(c) S/0032/65/031/001/0061/0065

ACCESSION NR: AP5002172

AUTHORS: Gol'danskiy, V. I.; Makarov, Ye. F.

TITLE: Some possible applications of the Mössbauer effect

SOURCE: Zavodskaya laboratoriya, v. 31, no. 1, 1965, 61-65

TOPIC TAGS: Mossbauer effect, resonance absorption, resonance scattering, gamma absorption, gamma emission, gamma scattering, velocity measurement, low temperature, high pressure effect, vibration measurement

ABSTRACT: This review article outlines in general terms a number of possible applications of the Mössbauer effect. The phenomenon of resonance absorption or scattering of gamma radiation occurs when the recoil energy is completely absorbed by the entire crystals in which the emitting and absorbing nuclei are located. The effect is extremely sensitive; resonance absorption or scattering completely disappears with a change in energy of the gamma ray of only one part in a trillion (and in some cases even a thousand times less). Thus, the Mössbauer effect is a decisive indicator of any effect which changes the energy of absorption or emission nuclei. Among the possible pairs of emission and absorption nuclei the most studied and most promising for practical application are the radioactive iron nucleus Fe^{57} (emitter),

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formed after the decay of Co^{57}, with the nonradioactive Fe^{57} (absorber) and the radioactive tin nucleus Sn^{119*} (emitter) with the nonradioactive Sn^{119} (absorber). The relative velocity of two objects can be determined in the range from 0.005 cm/sec to tens of m/sec by placing an emitter on one object and the appropriate absorber with a detector device on the other. Changes in the characteristics of the Mössbauer spectrum with temperature at very low temperatures make possible the construction of a thermometer for temperatures below 1 K. Constant or pulsed pressures above 10^4 atm can be measured by introducing radioactive atoms into the component subjected to the pressure. By placing the gamma-ray source on a vibrating component the product of the vibrational frequency and amplitude can be accurately measured when the product is greater than 0.001 cm/sec. The direction and magnitude of displacements from 10^{-4} to 10^{-1} cm can be determined for a component within a closed volume if the displacement velocity is less than about 1 mm/sec. However, it is indicated that considerable improvement can be made. The rotational velocity of an isolated system can be measured with an accuracy of 0.2 rev/sec for a system of radius 1 m. The resonance scattering phenomenon can be used to detect certain elements in rocks and minerals. For example, a proposed device can detect tin in concentrations as low as 0.02% in 1 to 15 minutes. The basic configurations of the

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components are diagrammed for each of the described applications. Orig. art. has: 10 diagrams. [04]

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: NP	
NO REF SOV: 005	OTHER: 007	ATD PRESS: 3170	

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ADADUROV, G.A.; BARKALOV, I.M.; GOL'DANSKIY, V.I.; DREMIN, A.N.; IGNATOVICH, T.N.; MIKHAYLOV, A.M.; TAL'ROZE, V.L.; YAMPOL'SKIY, P.A.

Polymerization in a shock wave. Vysokom.soed. 7 no.1:183 Ja '65. (MIRA 18:5)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

BUBEN, N.Ya., GOL'DANSKIY, V.I.; ZLATKEVICH, L.Sh., NIKOL'SKIY, V.G.; RAYEVSKIY, V.G.

Polymer mixtures studied by radiation luminescence. Dokl. AN SSSR 162 no.2:370-372 My '65. (MIRA 18:5)

1. Institut khimicheskoy fiziki AN SSSR i Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti. 2. Chlen-korrespondent AN SSSR (for Gol'danskiy).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 3174-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5010166 UR/0020/65/161/002/0373/0376

AUTHORS: Berlin, Al. Al.; Barkalov, I. M.; Yenikolopyan, N. S.; Gol'danskiy, V. I. (Corresponding member AN SSSR)

TITLE: Kinetic features of nonisotropic polymerization in the solid phase

SOURCE: AN SSSR. Doklady, v. 161, no. 2, 1965, 373-376

TOPIC TAGS: polymerization, kinetics, defect healing

ABSTRACT: The kinetic features of solid phase polymerization were examined, considering the nonisotropic growth of the polymer chain. The post-polymerization process, during which the formation of active centers and the growth of chains are separated in time, was investigated. The authors consider three cases. The first relates to the growth of the polymer chain from an active center to a defect in a crystal lattice. Starting with equations for concentration of active centers along coordinate directions, an equation is derived to express the kinetic curve:

$$\Pi \simeq \frac{R_0}{\alpha}(1-e^{-k\alpha t}) + \frac{R_0}{\delta}(1-e^{-[k\beta/\alpha]t}),$$

where R_0 is the initial concentration of radicals per unit volume, α the

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

probability of encountering a defect, δ the probability of complete destruction of an active center, k_1 and k_2 growth constants for two directions of growth, and t time. This equation is valid only when the prepared active centers quickly change to growing polymers. The second case considered relates to the situation when this change is slow. The kinetic curve then has the form

$$\Pi = \frac{k_2 A_0}{\alpha} t + \frac{k_1 - k_2}{k_1 \alpha} A_0 (1 - e^{-k_1 t}) ,$$

where k_i is the initiation constant and A_0 is the initial concentration. When $k_1 > k_2$, the curve is similar to that above. When $k_1 = k_2$, the curve is straight, and when $k_i < k_2$, the curve has an induction period. When the defects are annealed by monomolecular mechanism, the relations are different again, and the kinetic curve is expressed by

$$\Pi \simeq \frac{k_2 R_0 t + R_0 (1 - e^{-k_{0T} t})}{\alpha + \delta \alpha e^{-k_{0T} t}} ,$$

where k_{0T} is the constant for the annealing rate. The curve is somewhat S-shaped, and this is in agreement with experimental work. The authors point out that the kinetic pattern is not substantially changed if k_2 is considered to be the growth constant of any elemental act, such as growth of the chain, transfer of the chain,

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L 3174-66

ACCESSION NR: AP5010166

copolymerization, migration of defects, and the like. Orig. art. has: 3 figures and 10 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 22Sep64 ENCL: 00 SUB CODE: OC, SS

NO REF SOV: 003 OTHER: 002

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY, V.I., KITAYGORODSKIY, I.I., prof., RO.M, A.S., [illegible];
LEVICH, V.G., OPPENT, O.F., prof., RAZUVAYEV, V.A.;
TAL'ROZE, V.L., prof.; CHELNOV, A.G.; IVANOV, S.M., red.

[Chemistry on new frontiers] Khimiia na novykh rubezhakh.
Moskva, Izd-vo "Znanie," 1965. 46 p. (Novoe v zhizni,
nauke, tekhnike. XI Seriia, Khimiia, no.4) (MIRA 18:4)

1. Chlen-korrespondent AN SSSR (for Gol'danskiy, Levich,
Razuvayev).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

G.I'[illegible], V.I., otv. red.; LAVRUKHINA, A.K., [illegible]
khim. nauk, otv. red.; KODIN, S.S., red.; [illegible], red.

[Nuclear chemistry] IAdernaia khimiia. Moskva, Nauka, [illegible]
[illegible] p.

1. Akademiya nauk SSSR. Institut [illegible]
khimii. 2. Chlen-korrespondent AN SSSR (for G.I'[illegible])

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 19365-66 EWT(m)/EWP(j)/EWA(h)/EWA(l) WW/RM

ACCESSION NR: AP5013758 UR/0020/65/162/002/0370/0372

AUTHOR: Buben, N. Ya.; Gol'danskiy, V. I. (Corresponding member AN SSSR); Zlatkevich, L. Yu.; Nikol'skiy, V. G.; Rayevskiy, V. G.

18
15
6

TITLE: Study of a polymer mixture by radiothermoluminescence

SOURCE: AN SSSR. Doklady, v. 162, no. 2, 1965, 370-372

TOPIC TAGS: polymer, thermoluminescence, radiothermoluminescence, butadiene elastomer

ABSTRACT: Radiothermoluminescence was used in this work to evaluate the extent of homogeneity of polymer mixtures. Butadiene elastomers SKB and SKD, identical in composition but differing with regard to content of vicinal bonds, were mixed on rollers in various proportions. After degassing, the mixture samples were irradiated with fast electrons at 77K (dose: 1 rad) and allowed to warm up at the rate of 10—12° per min. Previous work had shown that each of the two elastomers had a well-resolved luminescence maximum corresponding to the vitrification temperature of the elastomer. It was found in the present work that when the two elastomers are mixed insufficiently the mixture exhibits two luminescence maxima. On the other hand, when the mixture is sufficiently homogeneous, only one maximum is observed,

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L 19365-66

ACCESSION NR: AP5013758

somewhere between the two maxima of the individual elastomers. It is planned to apply this method to quantitative observations of processes in mixed systems. Orig. art. has: 4 figures. [VS]

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR); Moskovskiy tekhnologicheskoy institut myasnoy i molochnoy promyshlennosti (Moscow Technological Institute of the Meat and Dairy Industry)

SUBMITTED: 09Jan65 ENCL: 00 SUB CODE: OC, MT

NO REF SOV: 007 OTHER: 000 ATD PRESS: 4015

Card 2/2 BG

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 5334-66 EWT(1)/ T(m) DIAAP/IJP(c)

ACCESSION NR: AP5021136 UR/0056/65/049/002/0699/0706

AUTHORS: Bersuker, I. B.; Gol'danskiy, V. I.; Makarov, Ye. F.

TITLE: Analysis of the variation of the Sn^{119} nuclear charge radius based on its Mossbauer spectra

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 2, 1965, 699-706

TOPIC TAGS: tin, tin compound, Mossbauer spectrum, crystal lattice structure

ABSTRACT: The authors present a more complete treatment of the distribution of the electron shells in compounds of tin, and its influence on the electron density at the nucleus. A general formula is derived for the dependence of the chemical shift on the parameters of the molecular orbitals in these compounds. From estimates of these parameters for the tetrahalogenides of tin it is concluded that the percentage change in the charge radius ($\Delta R/R$) of the excited nucleus is negative, in contrast with the previously obtained data by

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 5334-66
ACCESSION NR: AP5021136

others. This confirms a suggestion previously made by two of the authors (Goldanskiy and Makarov, Phys. Letters v. 14, 111, 1965). The estimated upper limit of $\Delta R/R$ is 1.6×10^{-4}. A more detailed analysis of the formula for the chemical shift will be necessary in the case of tin compounds with more complex structures than tetrahedral. Orig. art. has: 1 figure and 24 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR); Institut khimii Akademii nauk Moldavskoy SSR (Institute of Chemistry, Academy of Sciences, Moldavian SSR)

SUBMITTED: 24Mar65 ENCL: 00 SUB CODE: SS

NR REF SOV: 005 OTHER: 010

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 00714-66 EWT(m) DIAAP

ACCESSION NR: AP5014234 UR/0386/65/001/003/0015/0022

AUTHOR: Gol'danskiy, V. I.

TITLE: Two-proton radioactivity in nuclei heavier than tin

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 3, 1965, 15-22

TOPIC TAGS: radioactivity, radioactive decay, heavy nucleus

ABSTRACT: In previous predictions of the existence and properties of a new type of spontaneous conversion in elements with two-proton radioactivity, the author pointed out that this phenomenon is characteristic for neutron-deficient isotopes of the even-numbered light elements below tin (atomic numbers of 50 or less), while in heavier nuclei this phenomenon gives way to α-decay. Other authors have held that the region for possible prevalence of two-proton radioactivity is limited to elements with atomic numbers of less than 30. A more detailed analysis of the properties of neutron-deficient isotopes of elements heavier than tin shows that two-proton radioactivity should be widely prevalent also in the region where Z = 50-82. Approximately half the total number (about sixty) of two-proton radio-

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L 00714-66

ACCESSION NR: AP5014234

active nuclei of even-numbered elements fall within this region. The unique feature of two-proton decay in the Z > 50 region is that all 2*p*-radioisotopes in this region may also decay in the ordinary single proton manner, emitting first one (even) and only then a second (odd) proton. Experimental procedure is discussed for distinguishing two-proton radioactive decay from a sequence of two single *p*-decay events. Orig. art. has: 2 figures.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 23Mar65 ENCL: 00 SUB CODE: NP

NO REF SOV: 001 OTHER: 008

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY, V.I., FIRSOV, V.G.; SHANTAROVICH, V.P.

Effect of complex formation on reactions of positronium with inorganic ions. Kin.i kat. 6 no.3:364-365 My-Je '65.

(MIRA 18:10)

1. Institut khimicheskoy fiziki AN SSSR i Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

BAZ[illegible], A.I.; [illegible], [illegible]

Systematics [illegible] ,[illegible]45-[illegible]
Mr [illegible]5. [illegible]

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ALEKSANDROV, A.Yu.; BREGADZE, V.I.; GOL'DANSKIY, V.I.; [illegible]; OKHLOBYSTIN, O.Yu.; ERKAROV, V.V.

Organotin derivatives of biradicals studied by means of Mössbauer spectroscopy. Dokl. AN SSSR 165 no.3:593-596 N '65.

(MIRA 18:11)

1. Institut khimicheskoy fiziki AN SSSR i Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Gol'danskiy).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
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L 27184-65 EWG(j)/EPA(s)-2/ENT(m)/EPR(c)/EPF(n)-2/EWP(j)/T EWA(h)/EWA(l)
Pc-4/Pr-4/Ps-4/Pt-10/Peb/Pu-4 RPL WW/GG/RM

ACCESSION NR: AP5005898 S/0020/65/160/003/0646/0649

AUTHOR: Gol'danskiy, V. I. (Corresponding member AN SSSR); Gusakovskaya, I. G.; Yegorov, Ye. V.; Korolev, G. V.; Rapoport, V. S.

TITLE: Radiation polymerization of poly(alkyl acrylates)

SOURCE: AN SSSR. Doklady, v. 160, no. 3, 1965, 646-649

TOPIC TAGS: alkyl acrylate, alkyl methacrylate, polyalkylacrylate, polyalkylmethacrylate, radiation polymerization, free radical, hot radical theory, thermal polymerization, polymerization energy transfer

ABSTRACT: Because there is no published data on the subject, the authors studied the kinetics of radiation-induced polymerization of alkyl acrylates and compared the obtained relationships with those pertaining to the three-dimensional thermal polymerization of the same monomers. A method of direct measuring of the heat evolved in the polymerization, developed by the authors, was applied for the first time. Poly(alkyl methacrylate) oligomers (MB from butanediol methacrylate) and two condensation products of butanediol and methacrylic and phthalic acid (MBP-1 and MBP-2), differing in the length

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L 27184-65

ACCESSION NR: AP5005898

of the oligomer chain, were used. The viscosity of the medium was increased by adding varying amounts of an inert, highly viscous solvent, IDP-2 (a condensation product of isobutyric acid, diethyleneglycol and phthalic acid). Irradiation was carried out either in a GUT-400 Co^{60} installation (dose rate 3—21 rad/sec) or in an electron accelerator (dose rate 10^4—10^5 rad/sec) at 20—25C. The results were recorded by a thermograph, which produced the heat evolution curve vs the time of irradiation. Analytical processing of the data gave the curves of the reduced polymerization rate vs dose rate and vs the degree of conversion. It was found that, as in thermal polymerization, oxygen inhibits the process of radiation-induced polymerization, and that the process has a chain-radical mechanism of conversion. However, two differences were noted: 1) In radiation polymerization "hot radical" recombination in the rigid three-dimensional structure was more difficult. Therefore, it was assumed that the dissipation and the transfer of energy necessary for the propagation of the polymerization took place along the polymer chains, which acquired a certain mobility, and that energy transfer was effected by a gradual excitation of the energy levels along the chains. The latter assumption was confirmed by the independence of the polymerization rate on the

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ACCESSION NR: AP5005898

viscosity of the medium, which inhibits the direct diffusion of radicals. 2) Radiation polymerization produced complete conversion (up to 100%) whereas chemically induced polymerization cannot achieve such a high degree of conversion even at high temperatures. Energy transfer along the chains also explains the improvement in physical and mechanical properties of the polymers. For example, the heat stability of the radiation-induced poly(alkyl acrylates) is several times higher than that of chemically cured polymers. The increased energy of the separate elements of the three-dimensional structure apparently produces a relaxation of inner stresses, a kind of high-temperature "annealing" of the polymer. Orig. art. has: 3 figures and 1 table. [BN]

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 14Sep64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 007 OTHER: 002 ATD PRESS: 3191

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOL'DANSKIY, V.I.

Effect of pairing on the penetration of two particles through a centrifugal barrier. IAd. fiz. 1 no.4:596-599 Ap '65. (MIRA 18:5)

1 Institut khimicheskoy fiziki AN SSSR.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

[illegible], G.A.; [illegible], I.M.; GOL'DBLEYT, V.I.; [illegible]
[illegible] V.N.; [illegible]; MIKHAYLOV, A.A.; [illegible]

Determination of condensed [illegible]. Dokl.
AN SSSR 145 no.4:851-854 D '62.

1. [illegible] Khimicheskoy fiziki AN SSSR. [illegible]
Institut mekhaniki AN SSSR (for Gol'dblyt).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 52265-65 EPF(c)/EPF(n)-2/EWG(j)/EWT(m)/EWP(j)/EWA(h)/T/EWA(l) Pc-4/Pr-4/Peb/
Pu-4 AFFTC/SSD JG/RM

ACCESSION NR: AP5010838 UR/0020/65/161/004/0882/0885

AUTHOR: Trofimova, G. M.; Barkalov, I. M.; Kuz'mina, S. S.; Yenikolopyan, N. S.; Gol'danskiy, V. I. (Corresponding member AN SSSR)

TITLE: Radiation polymerization of hexamethylcyclotrisiloxane in the solid phase

SOURCE: AN SSSR. Doklady, v. 161, no. 4, 1965, 882-885

TOPIC TAGS: radiation, radiation polymerization, solid phase polymerization, polymerization, hexamethylcyclotrisiloxane, cyclic hydrocarbon

ABSTRACT: Kinetics of hexamethylcyclotrisiloxane (I) polymerization in the solid phase and under X-ray irradiation was studied in detail. Thermographic analysis of the reacting system indicated a phase change around -10°C. From -196° to -10°C the initial rate of polymerization is independent of temperature, and the size of the monomer crystals, and the energy of activation is equal to zero for coarse crystals and 3.9 kcal/mol for fine crystals. From 0°C to the boiling point of (I) the initial rate of polymerization is dependent upon temperature, monomer crystallinity and size, and the activation energy of the polymerization reaction is equal to 8.5 kcal/mol. In both temperature ranges the rate of polymerization is propor-

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 52265-65

ACCESSION NR: AP5010838

tional to the radiation intensity. Orig. art. has: 2 figures and 2 formulas.

ASSOCIATION: Institut khimicheskoy fiziki akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 15Dec64 ENCL: 00 SUB CODE: GC, CC

NO REF SOV: 006 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 34160-65 EPF(c) EPF(n)-2/EWG(j)/EWA(h)/EWP(j)/EWT(m)/EWA(l) Pc-4/Pr-4/
Pu-4/Peb GG/RM

ACCESSION NR: AP5008234 S/0286/65/000/005/0129/0129

AUTHOR: Dogadkin, B. A.; Tutorskiy, I. A.; Markov, V. V.; Gol'danskiy, V. I.; Yegorov, Ye. V.; Rapoport, V. B.; Shumanov, L. A. 42 B

TITLE: A method for the preparation of radiation-resistant coatings. Class 39, No. 151801

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 129

TOPIC TAGS: polymer coating, radiation damage, polymer solution, polyisoprene rubber

ABSTRACT: This Author Certificate describes the use of a 40% solution of cyclized polyisoprene rubber in xylene and white spirit for producing radiation-resistant coatings. [VS]

ASSOCIATION: none

SUBMITTED: 30oct61 ENCL: 00 SUB CODE: MT, GB

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3212

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

BERSUKER, I.B.; GOL'DANSKIY, V.I.; MAKAROV, Ye.F.

Distribution of an electron cloud in tin tetrahalides from the data of chemical shifts of Mössbauer spectra and nuclear quadrupole resonance spectra. Teoret. i eksper. khim. 1 no. 5:678-680 S-O '65 (MIRA 19:1)

1. Institut khimicheskoy fiziki AN SSSR, Moskva. Submitted June 30, 1965.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 60458-65 EPF(c)/EPF(n)-2/EWG(j)/EWA(h)/EWP(j)/EWT(m)/T/EWA(c) Pc-4/
Pr-4/Pu-4/Peb GG/JAJ/RM
ACCESSION NR: AP5007569 S/0020/65/160/005/1104/1107

AUTHOR: Berlin, Al. Al.; Barkalov, I. M.; Gol'danskiy, V. I. (Corresponding member AN SSSR); Yenikolopyan, N. S.

TITLE: Kinetics of solid-phase polymerization

SOURCE: AN SSSR. Doklady, v. 160, no. 5, 1965, 1104-1107

TOPIC TAGS: solid state polymerization, radiation polymerization, kinetic theory, chain initiation, chain propagation

ABSTRACT: The article presents some kinetic principles of catalytic and radiation post-polymerization in the solid phase. The treatment is confined to the case involving the propagation of the polymer chain in only one of the possible directions in a crystal. Chain initiation is discussed in terms of formation of active centers under the influence of radiation; this formation may occur in a primary or secondary reaction. Chain growth is discussed in terms of four cases: (1) Fast initiation and slow chain growth; (2) Slow initiation and fast chain growth; (3) The growth of the polymer chain in the crystal of the monomer is not associated with breaking of the crystal; (4) Defects caused by the radiation are healed at an elevated temperature. Although the treatment pertains to one preferred direction

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L 60458-65
ACCESSION NR: AP5007569

of chain propagation, the form of the basic equations derived does not change appreciably when an isotropic growth of the polymer chain is considered. The next report will examine the kinetic relationships involved in post-polymerization in the presence of two or several preferred directions of propagation of the polymer chain. Orig. art. has: 1 figure and 16 equations.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 22Sep64 ENCL: 00 SUB CODE: GC, SS

NO REF SOV: 007 OTHER: 000

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 15674-66 EWT(m)/T/EWP(t) IJP(c) JD

ACC NR: AP6000195 SOURCE CODE: UR/0056/65/049/005/1424/1430

AUTHOR: Suzdalev, I. P.; Gol'danskiy, V. I.; Makarov, Ye. F.; Plachinda, A. S.; Korytko, L. A.

ORG: Institute of Chemical Physics, Academy of Sciences, SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Investigation of the dynamics of motion of tin atoms on a silica gel surface by means of the Mossbauer effect

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 5, 1965, 1424-1430

TOPIC TAGS: Mossbauer effect, tin, chemical valence, silica gel, atom, adsorption, ion exchange, calcium, cryostat, temperature measurement, gamma spectrometer, chemisorption, temperature dependence, electric field

ABSTRACT: The authors studied the dynamics of motion of tin atoms adsorbed on a silica gel surface with specific area 300 m^2/g and particle diameter ~100 Å. A monomolecular layer of tin was produced on the surface by successive ion exchange of the hydrogen atoms contained in the hydroxyl on the surface, first with Ca^{2+}, and then with Sn^{2+}. A special cryostat was constructed for the temperature measurement which could maintain any temperature between 90 and 300K accurate to 0.1°. All measurements were made with the nuclear gamma-ray resonance spectrometer described by the authors earlier (Zavodskaya laboratoriya, no. 12, 1965). The experimental results indicate that the tin atoms exist on the surface in two states, tetravalent and divalent. The temperature dependence of the intensity of the Mossbauer effect shown

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 15674-66

ACC NR: AP6000195

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that the former is attached to the surface by physical adsorption, and the latter is held by chemisorption. With increasing temperature, the doublet components on the spectrum (which consist of a singlet and a doublet) become asymmetrical, and the electric field gradient at the Sn^{119} nucleus increases over the value for crystalline SnO. Estimates are presented for the absolute values of the rms displacements of the molecule $SnO_2 \cdot nH_2O$ on the surface, and of the tin atoms within the molecules. The energy of the zero-point vibrations of the tin atoms and molecules, the energy at which the binding between the molecule and adsorption center on the surface vanishes, the absolute value of the rms displacement of the tin atom within the SnO molecule normally and parallel to the surface, and the temperature dependence of these quantities are also estimated. Authors thank I. Ye. Neymark, V. M. Chert v, nd I. Ya. Garzanov for interest in the work and for help with the experiments, and Yu. M. Kagan for a discussion of the results. Orig. art. has: 4 figures and 4 formulas.

SUB CODE: 07,20/ SUBM DATE: 08Jan65/ ORIG REF: 011/ OTH REF: 005

Card 2/2 mjs

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 34851-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T/EWA(h)/EWA(l) Pc-4/Pr-4/
ACCESSION NR: AP5008549 S/0286/65/000/006/0062/0062
Pu-4/Peb/Ps-4 RPL WW/GG/RM

AUTHOR: Gol'danskiy, V. I.; Yegorov, Ye. V.

TITLE: A method for producing grafted copolymers. Class 39, No. 169219

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 62

TOPIC TAGS: grafted copolymer, neutron radiation

ABSTRACT: This Author's Certificate introduces a method for producing grafted copolymers using neutron radiation. Lithium and boron compounds are used as neutron absorption traps on the surface of the grafted polymer.

ASSOCIATION: none

SUBMITTED: 27Apr61 ENCL: 00 SUB CODE: MT, GC, NP

NO REF SOV: 000 OTHER: 000

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 13316-66 EWT(1)/EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6003254 SOURCE CODE: UR/0020/65/165/006/1347/1349

AUTHOR: Stukan, R. A.; Gol'danskiy, V. I. (Corresponding member AN SSSR); Makarov, Ye. F.

ORG: Institute of Chemical Physics, Academy of Sciences, SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: The analytical use of the Mossbauer effect in the tagged atom method

SOURCE: AN SSSR. Doklady, v. 165, no. 6, 1965, 1347-1349

TOPIC TAGS: iron compound, Mossbauer effect, charge exchange, isotope, Mossbauer spectrum, redox reaction

ABSTRACT: The method consists in successively enriching each of the reacting components in the given complex system with the Mossbauer isotope of the element which is in the given component (for example Fe^{57}, Sn^{119}) and then studying the changes in the Mossbauer spectrum of the reaction products as compared with the spectrum of the natural isotope components. Variations can be extremely fruitful in the study of rapid redox processes or isotope exchange and also for the study of chemical processes at low temperatures. The experiments were conducted with Fe^{+2} and Fe^{+3} ions in Cl^- - and SO_4^{2-}-containing media at pH ~1. The Mossbauer spectra were measured on an elec-

UDC: 543.5+541.123.59

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"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

trodynamic 500-channel gamma resonance spectrometer. Cobalt-57 was used as the gamma source. All measurements were taken at liquid nitrogen temperature. The two starting solutions contained: 8 mg of Fe^{+3} ions 60% enriched with Fe^{57} isotope and 12 mg Fe^{+2} with natural content of Fe^{57}. After obtaining the Mossbauer spectra on the starting solutions they were mixed in a cuvette and frozen at 80°K. After mixing, the spectral parameters of the solution are characteristic for Fe^{+2} with higher line intensities than in the starting solution of Fe^{+2} (see fig. 1) indicating increase of the concentration of ^{57}Fe in the Fe^{+2} form due to the electron exchange reaction

$$^{57}Fe^{+3} + Fe^{+2} \rightleftarrows {}^{57}Fe^{+2} + Fe^{+3}$$

The Fe^{+3} line is weak due to the very small f' for Fe^{+3} ion and the high degree of electron exchange. Changes in the spectrum in the course of the 2 hr measurement period indicate that some electron exchange takes place in the frozen solutions at 80°K. The experiment shows the effectiveness of this method in the investigation of electron and isotope exchange. In the investigated system electron exchange between Fe^{+2} and Fe^{+3} proceeds rapidly, but at a measurable rate. It is planned in the future to use the method for the quantitative investigation of the

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 13316-66

ACC NR: AP6003254

kinetics and the mechanism of the reactions with the participation of

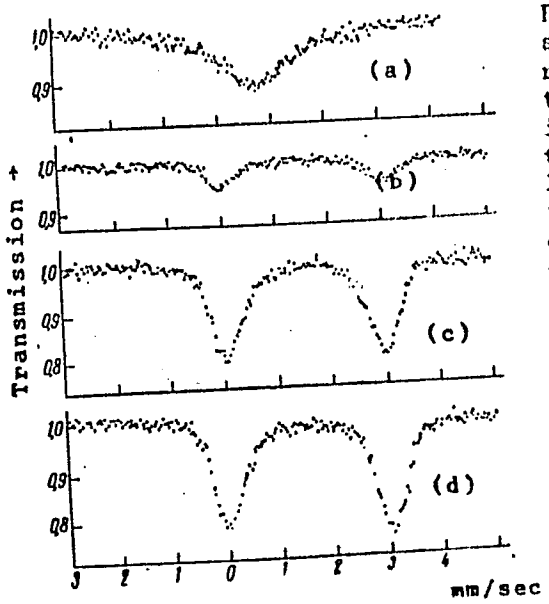

Fig. 1. a--Mossbauer spectrum of solution containing Fe^{+3} ions, enriched in ^{57}Fe; b--Mossbauer spectrum of solution containing Fe^{+2} ions of natural isotopic composition; c--Mossbauer spectrum of solution produced by mixing solutions (a) and (b), frozen several minutes after mixing; d--Mossbauer spectrum of solution produced by mixing solutions (a) and (b), frozen 12 hrs after mixing.

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"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 13316-66 APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACC NR: AP6003254

Fe^{+2} and Fe^{+3} ions in complex and organometallic compounds of iron

The authors express their gratitude to V. A. Trukhtanov and M. N. Divisheva for their help in conducting the experiments. Orig. art. has: 1 table and 1 figure. [14]

SUB CODE: 07,20/ SUBM DATE: 09Jul65/ ORIG REF: 003/ OTH REF: 005
ATD PRESS: 4188

Card 4/4

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 53979-65 EWG(j)/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T/EWA(h)/EWA(l) Pc-4/Pr-4/
Ps-4/Peb/P1-4/Pu-4 RPL WW/JW/GG/RM
ACCESSION NR: AP5012769 UR/0020/65/161/006/1368/1370

55
52
6

AUTHOR: Barkalov, I. M.; Gol'danskiy, V. I. (Corresponding member AN SSSR); Rapoport, V. B.

TITLE: Calorimetric analysis of the kinetics of radiation polymerization

SOURCE: AN SSSR. Doklady, v. 161, no. 6, 1965, 1368-1370

TOPIC TAGS: calorimetry, radiation polymerization, kinetics, polymerization, solid phase

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ABSTRACT: A special heat-conducting calorimeter was built according to the principle of Calvier's microcalorimeter for making measurements directly in a radiation field. A diagram of the calorimeter is shown in fig. 1 of the Enclosure. Two identical vessels of pure copper with the test sample (1) and a calibrating device (2) are surrounded by casings (3 and 4) which are identical in their thermophysical properties and through which flows practically all the heat given off in the sample and calibrating device. The termal flows which pass between casings 3 and 4 create between their inner and outer surfaces temperature drops which are controlled by a battery of thermocouples (5 and 6) connected differentially to a galvanometer (7).

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"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 53979-65
ACCESSION NR: AP5012769

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The measuring vessels with their casings are placed in a massive copper block which provides an even temperature field around the batteries of the thermocouples. The block (8) is placed in a thermostatic copper casing (9) in which the liquid of the thermostat circulates. Between the thermostatic casing (9) and the block (8) are 4 copper screens (10) each 0.2 mm thick. The radiation of the operating vessel of the calorimeter can be conducted both from the end of the calorimeter through channel (11) and also radially through the walls of the thermostatic chamber. A calorimeter of this design was used in working on the following three problems: (1) investigation of the kinetics of radiation polymerization of polyesteracrylates; (2) measurement of the heats of fusion and phase transitions in certain monomers; and (3) investigation of the kinetics of solid phase polymerization directly during radiation.
Orig. art. has: 4 figures

ASSOCIATION: Institut khimicheskey fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 21Dec64 ENCL: 01 SUB CODE: TD, OC

NO REF SOV: 004 OTHER: 000

Card 2/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4

L 53979-65
ACCESSION NR: AP5012769

ENCLOSURE: 01

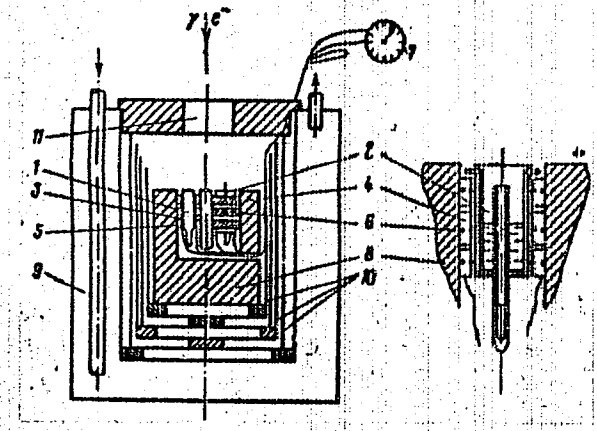

Fig. 1. Diagram of the calorimeter

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 25697-66 EWT(l)/EWT(m)/EWA(d)/EWP(t) DIAAP/IJP(c) JD/JW

ACC NR: AP6002704 SOURCE CODE: UR/0056/65/049/006/1681/1688

AUTHOR: Gol'danskiy, V. I.; Belov, V. F.; Devisheva, M. N.; Truhhtanov, V. A. 69

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR) B

TITLE: Investigation of internal magnetic fields on Fe^{57} nuclei in Ni-Zn ferrites by the nuclear gamma resonance method

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 6, 1965, 1681-1688

TOPIC TAGS: Mossbauer effect, ferrite, iron, line splitting, magnetic field, electron density, zinc compound, ferromagnetic material, paramagnetic material

ABSTRACT: The authors obtained the Mossbauer spectra of the Ni-Zn series of ferrites and determined the values of the internal magnetic field on the Fe^{57} nuclei with the zinc concentration varied from 0 to 1 (at 300 and 78K). The apparatus used was of the electrodynamic type, described in detail elsewhere (Zavodskaya laboratoriya No. 12, 1965). The ferrites were prepared by a standard ceramic technique. From the spectra obtained it is deduced that with increasing zinc content, up to total substitution of zinc for the iron ions, the ferrite goes over from the ferrimagnetic ordered state to a paramagnetic state. The line splitting in the pure nickel ferrite can be attributed to the existence of two fields with different ion positions. Smaller values of the field correspond to tetrahedral positions of the iron ions. Both the positive components of the field and the electron density in the region increase simultaneously.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 25697-66

ACC NR: AP6002704

At 78K the character of the Mossbauer spectra is similar to that at room temperature, except that the lines converge at larger zinc contents, the internal magnetic field on the nuclei are larger, and the difference in the values of the internal field due to the different positions of the iron ions is also larger. With increasing zinc content, the field on the iron nuclei in both the tetrahedral and in the octahedral sublattice decreases, in contradiction to the data obtained by Abe, Matsuura, et al. (J. Phys. Soc. Japan v. 18, 1400, 1963). Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 20/ SUBM DATE: 25May65/ ORIG REF: 002/ OTH REF: 015

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 17622-66 EWT(m)/EWP(j)/T/EWP(k) RM

ACC NR: AP6001732 SOURCE CODE: UR/0020/65/165/004/0851/0854

AUTHORS: Adadurov, G. A.; Barkalov, I. M.; Dremin, A. N.; Ignatovich, T. N.; Mikhaylov, A. N.; Tal'roze, V. L.; Yampol'skiy, P. A.; Gol'danskiy, V. I. (Corresponding member AN SSSR)

ORG: Institute for Chemical Physics, Academy of Sciences, SSSR (Institute khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Polymerization of condensed monomers in shock waves 7,44,55

SOURCE: AN SSSR. Doklady, v. 165, no. 4, 1965, 851-854

TOPIC TAGS: polymerization, shock wave, monomer

ABSTRACT: The shock wave polymerization of condensed monomers (trioxane, acrylamide, potassium acrylate, methacrylamide, tolane, salicilic aldehyde, stilbene, and diphenylbutadiene) was studied. The experimental technique followed that described by G. A. Adadurov i dr. (Vysokomolek. soyed., 7 No. 1, 180, 1965). The experimental results are tabulated. It is concluded that observed polymer-

Card 1/2

UDC: 541.64; 678.744; 534.222.1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 17629-66

ACC NR: AP6001732

ization occurs directly in the shock wave and is not due to secondary effects.
Orig. art. has: 1 table.

SUB CODE: 11/ SUBM DATE: 01Jun65/ ORIG REF: 008/ OTH REF: 005

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 36229-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6024517 SOURCE CODE: UR/0386/66/004/002/0063/0064

AUTHOR: Gol'danskiy, V. I.; Devisheva, M. N.; Makarov, Ye. F.; Morrikov, G. V.; Trukhtanov, V. A.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Sign of the magnetic field at tin nuclei in a ferrodielectric matrix

SOURCE: Zh eksper i teor fiz. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 2, 1966, 63-64

TOPIC TAGS: tin, ferrite, Mossbauer spectrum, spectral distribution, magnetic moment, line splitting

ABSTRACT: The purpose of the investigation was to determine the sign of the indirectly induced (super-exchange) field at the nuclei of nonmagnetic tin atoms introduced into an yttrium-iron-garnet matrix, previously observed by the authors (Pis'ma ZhETF v. 1, no. 1, 1965; Phys. Lett. v. 15, no. 4, 1965). To this end the authors investigated the Mossbauer spectra of the same garnet sample placed in an external magnetic field. The change in the intesity ratios of the various spectral components, due to application of the magnetic field, is attributed to the change in the character of the angular distribution of the components of the transitions $\pm 1/2 \; (4/2) \rightarrow \pm 1/2 \; (1/2)$. The distinctly observed increase in the splitting of the Mossbauer spectrum components indicates that the internal magnetic field at the tin nuclei co-

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACC NR: AP6024517

incides in direction with the applied electric field, with the magnetic moment of the tetrahedral sublattice parallel and that of the octahedral sublattice antiparallel to the applied field. Since the internal magnetic field at the iron nucleus is always negative relative to the magnetic moment of its ion, it is concluded that the fields of the nuclei, both tin and iron, situated in the same (octahedral) sublattice of the yttrium iron garnet have the same sign. Several explanations of this fact will be discussed in a future article. The authors thank Yu. S. Sherbinin for making possible the operation of the apparatus and Yu. P. Baydorovtsev for supplying the magnet. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 20May66/ ORIG REF: 002/ OTH REF: 002

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 23156-66 EWT(m)/T

ACC NR: AP6006840 SOURCE CODE: UR/0181/66/008/002/0515/0524

AUTHOR: Gol'danskiy, V. I.; Prokop'yev, Ye. P.

26
B

ORG: Institute of Chemical Physics, AN SSSR, Moscow (Institut khimicheskoy fiziki AN SSSR)

TITLE: Annihilation of slow positrons in ionic media

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 515-524

TOPIC TAGS: particle annihilation, crystal theory, ionic crystal, positron, electron positron pair

ABSTRACT: The authors study some of the fundamental characteristics of annihilation of thermal positrons bound to negative ions. An expression is derived for calculating the energy of bound states of a thermalized positron and parameters are tabulated for coupling between a positron and anions in various ionic crystals. Formulas are given for calculating the lifetimes of positrons on anions in fluoride, oxide, chloride, sulfide, iodide and telluride ionic crystals. A table is given showing the lifetimes for positrons in various crystals calculated from these formulas. The authors discuss the angular correlation and momentum distribution for

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 23156-66

ACC NR: AP6006840

centers of gravity of electron-positron pairs in the two-quantum annihilation process. A comparison of theoretical data for lifetimes with the experimentally observed values shows that annihilation of positrons from bound states in quasi-atomic systems of the positron-anion type should contribute a short-lived component of $\tau_1 \sim 2 \cdot 10^{-10}$ sec. These data also confirm the possibility of a still shorter component in annihilation of positrons from ground states with a lifetime of $\tau_0 \sim 10^{-11}$ sec. This hypothesis is also confirmed by the calculated half-width of the angular correlation and by maximum momenta for the centers of gravity of annihilating pairs. Orig. art. has: 1 figure, 4 tables, 37 formulas.

SUB CODE: 20/ SUBM DATE: 13Nov64/ ORIG REF: 013/ OTH REF: 012

Card 2/2 PB

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 31524-66 EWT(m)
ACC NR: AP6016034 SOURCE CODE: UR/0030/66/000/004/0044/0076

AUTHOR: Gol'danskiy, V. I. (Corresponding member AN SSSR)

ORG: none

TITLE: Research in the field of gamma-resonance spectroscopy

SOURCE: AN SSSR. Vestnik, no. 4, 1966, 44-76

TOPIC TAGS: Mossbauer effect, Mossbauer spectrum, gamma spectroscopy, quantum resonance phenomenon, chemical analysis, biochemistry

ABSTRACT: This is a popular review article dealing with the Mossbauer effect and its various applications in physics, chemistry, biology, geology, and engineering, with principal attention paid to chemical gamma-resonance spectroscopy and various biological and chemical applications on which research is being carried out at the Institute of Chemical Physics of the Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR). The topics covered are the Mossbauer effect, the parameters of nuclear gamma-resonance (NGR) spectra, and the elements for which the Mossbauer effect has already been observed, some applications of NGR in nuclear and general physics, in solid state physics, examples of chemical applications of gamma-resonance spectroscopy, NGR as a method of physico-chemical

Card 1/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4
APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACC NR: AP7001179

AUTHOR: Arifov, P. U.; Dolginovskiy, Yu. I.; Sayasov, Yu. S.

ORG: Physicotechnical Institute, AN UzSSR (Fiziko-tekhnicheskiy institut AN Uzbekskoy SSR); Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Acceleration spectrum of light particles in heavy gas, with [illegible] of the capture process

SOURCE: AN UzSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. [illegible], 1965, 88-89

TOPIC TAGS: kinetic theory, kinetic equation, inelastic interaction, [illegible] particle, [illegible]

ABSTRACT: A general study is made of the slowing-down process of electrons and neutrons in a stationary cloud of atoms and positive ions. Starting from Massey and Burhop (G. Messi and Ye. Berkhop. Elektronnyye i ionnyye stolknoveniya. IL, 1958, gl. 1, 5; gl. 3, 4), two kinetic equations that describe the drift of light particles in a heavy gas under the action of electric fields, the following second order differential equation is obtained

$$-\frac{eE}{m}\frac{d}{dv}\left(\frac{v}{NQ_m}\frac{df_0}{dv}\right)+\frac{\varepsilon}{m}NQ_m f_0=\frac{2}{M}\frac{d}{dv}(v^3NQ_d f_0)+\frac{R(v)}{2v},$$

where R is a source term, Q_d is a momentum transfer cross section, and $Q_{in} = Q_{in}$(decay

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cross section) + $\hat{C}_{ij}$. In the absence of an electric field the stationary distribution for the light particles can be obtained readily. For no electric fields this is given by

$$f = f_0 = \frac{M}{m}\frac{f_M}{1+\sum N Q_j v^2} = \frac{M}{m}\frac{f}{1+\sum N Q_j v^2}$$

for elastic loss processes and by

$$f = f_0 = \frac{M}{m}\frac{f_M}{1+\sum N Q_j v^2}\, e^{-\frac{M}{2m}\int_{\varepsilon_0}^{\varepsilon_0+\varepsilon}\frac{\sum N Q_j}{\sum N Q_j}\,d\varepsilon}$$

if loss processes are included. The problem becomes more complicated in the presence of an electric field. For a weak electric field one can calculate a first order correction to the stationary solution, corresponding to elastic-inelastic momentum transfer processes. This yields

$$f_1 = z\, e^{-\frac{1}{2}\int_0^{\varepsilon}\frac{\sum N Q_j}{\sum N Q_j}\,d\varepsilon}\left[B + \frac{2m^2}{3M^2}\int_0^{\varepsilon}\left(\int_0^{\varepsilon}\sum N Q_j v^3 f_0^{(1)}\,dv\right)\frac{d\varepsilon}{\sum N Q_j v^3} + C_1 e^{\frac{1}{2}\int_0^{\varepsilon}\frac{\sum N Q_j}{\sum N Q_j}\,d\varepsilon}\right].$$

Some numerical results are given in which flow is assumed to acquire the various distributions. Numerical derived charac. graphs are used in preparation and 1 table.

UDC 537.[illegible] SUBM DATE: 27Mar67/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 4201/ SUBJ CODE: 20, 12

...RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 34041-66 EWT(l)/EWT(m)/EWT(m)/EWA(c) IJP(c) WW/RM

ACC NR: AP6012921 SOURCE CODE: UR/0020/66/167/005/1077/1078

AUTHOR: Barkalov, I.M.; Gol'danskiy, V.I. (Corresponding member AN SSSR); Gustov, V.V.; Dremin, A.N.; Mikhaylov, A.M.; Tal'roze, V.L.; Yampol'skiy, P.A.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Shock wave vulcanization of rubbers

SOURCE: AN SSSR, Doklady, v. 167, no. 5, 1966, 1077-1078

TOPIC TAGS: vulcanization, rubber, shock wave

ABSTRACT: Continuing the study of polymerization in shock waves, the authors investigated the possibility of vulcanizing rubbers by use of a shock wave. Samples of N.K. SKB, "Europren"-1500, SKS-30A, SKD, and polyisobutylene rubbers were subjected to shock waves with amplitudes from 30,000 to 100,000 atm. The percentage of the gel fraction and the molecular weight of the network were determined in each sample. No cross-linking could be detected in polyisobutylene (a rubber having no double bonds in the main chain); only a certain degree of degradation took place. The shock-wave-induced cross-linking reaction in SKB rubber has a definite threshold character, the threshold pressure being about 35,000 atm. The gel fraction appears above this pressure, and at 60,000 atm an almost completely cross-linked vulcanization is obtained. A partial cross-linking is observed above 100,000 atm. The vulcanization phenomena observed occur at the impact of shock

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ACC NR: AP6012921

wave passes through the rubber, i.e., in a time of the order of 10^{-5} sec. Thus, in SKB rubber (MW 80,000 — 200,000) at a pressure of 50,000 atm in the shock wave, over 10^{19} cross-links are formed per gram in 10^{-5} sec. Orig. art. has: 1 figure and 1 table.

SUB CODE: 11,07 / SUBM DATE: 16Nov65 / ORIG REF: 003 / OTH REF: 001

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 40191-66

ACC NR: AP6012182 SOURCE CODE: UR/0386/66/003/008/0309/0312

AUTHOR: Barkalov, I. M.; Gol'danskiy, V. I.; Tal'roze, V. L.; Yampol'skiy, P. A.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Intensification of a shock wave by the polymerization energy and the feasibility of a polymerization detonation

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. V redaktsiyu. Prilozheniye, v. 3, no. 8, 1966, 309-312

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JUL 29 1966

TOPIC TAGS: shock wave interaction, chemical explosion, plastic explosive, polymerization kinetics, detonation, monomer

ABSTRACT: This is a continuation of earlier work (Dokl. AN SSSR v. 165, 851, 1965), where polymerization of several solid monomers by a shock wave was observed, and the energy release was estimated. In the present article the authors compare this energy with the energy obtained by the substance as a result of compression by the shock wave. This is done by obtaining the dependence of the specific volume of the substance on the applied pressure from the shock adiabat of the investigated substance. The estimates are made for acryl amide, which was used in the earlier study, making use of published data on plexiglass and polystyrene, which have the

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same initial density and approximately equal compression coefficients. Since the passage of the shock wave left no traces of melting of the substance it is concluded that a considerable portion of the thermal energy released at the instant of polymerization is transferred to the shock wave, being converted into elastic energy of the substance. It is also shown that the energy released during polymerization is approximately equal to the energy lost by the shock wave to the compression of the monomer. Therefore the additional fraction of the energy obtained by the shock wave from the chemical processes is comparable with the total energy obtained by the substance upon compression by the shock wave. From a detailed theoretical analysis made by N. M. Kuznetsov at the authors' request (ZhETF v. 49, 1526, 1965) and from other considerations it is concluded that a detonation can occur as a result of polymerization by a shock wave. The authors thank Academician N. N. Semenov and N. M. Kuznetsov for a valuable discussion. [02]

SUB CODE: 07, 20 SUBM DATE: 17Feb66/ ORIG REF: 005/ OTH REF: 002
ATD PRESS: 4225

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

L 07336-67 EWT(m)/EWP(v)/EWP(j) IJP(c) WW/GG/GD/RM

ACC NR: AT6034058 SOURCE CODE: UR/0000/66/000/000/0337/0340

AUTHOR: Voyutskiy, S. S.; Gol'danskiy, V. I.; Gul', V. Ye.; Gustov, V. V.; Yegorov, Ye. V.; Rayevskiy, V. G.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR); Moscow Technological Institute of the Meat and Dairy Industry (Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti); Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

TITLE: Effect of radiation on the adhesion of certain polymers

SOURCE: Simpozium po radiatsionnoy khimii polimerov, Moscow, 1964. Radiatsionnaya khimiya polimerov (Radiation chemistry of polymers); doklady simpoziuma. Moscow, Izd-vo Nauka, 1966, 337-340

TOPIC TAGS: adhesion, elastomer, polyethylene, cellophane, polycaprolactam, glass, irradiation, finishing

ABSTRACT: A study has been made of the effect of radiation on the adhesion of certain elastomers or polyethylene to such substrates as cellophane, polycaprolactam films or glass. The specimens were prepared and irradiated with fast electrons with integral doses of up to 10^8 rad. It was shown that the adhesion attains a maximum at a given dose and

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then drops with a further increase of the dose. The increase of the adhesion was attributed to the radiation-induced acceleration of the diffusion of macromolecular segments in the contact zone. The drop of the adhesion with a further increase of the dose was explained either as cross-linking in the elastomers (butadiene-styrene and nitrile rubbers) which causes shrinkage stresses, or as degradation (butyl rubber). High adhesion was attained by irradiation of specimens prepared with cellophane or glass finished with vinyltrichlorosilane. In the case of cellophane, adhesion increased with dose up to $\sim 10^7$ rad (maximum radiation withstood by the substrate) to attain $\sim$ 275 g/cm. Adhesion of polyethylene to glass was increased to about 400 g/cm by combining vinyltrichlorosilane finishing of the substrate with irradiation with doses up to 5×10^7 rad. The high adhesion of systems subjected to this combined treatment was attributed, in addition to the acceleration of diffusion phenomena, to chemical bonding between the adhesive and the modified substrate. Orig. art. has: 4 figures.

SUB CODE: 07, 11/ SUBM DATE: 25Jul66/ ORIG REF: 006/ OTH REF: 002
ATD PRESS: 5101

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L 08180-67 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6024870 SOURCE CODE: UR/0056/66/051/001/0118/0120

AUTHOR: Suzdalev, I. P.; Gen, M. Ya.; Gol'danskiy, V. I.; Makarov, Ye. F.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institute khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Nuclear gamma resonance in highly dispersed tin

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 118-120

TOPIC TAGS: tin, nuclear resonance, aerosol, Mossbauer effect, Mossbauer spectrum, temperature dependence

ABSTRACT: The Mossbauer effect was investigated in highly dispersed tin particles having diameters of 250, 370, 600, and 1550 Å. The dispersed tin was produced by evaporating liquid drops in a helium or argon atmosphere and condensing the vapor into aerosol particles. The particle size was regulated by the rate of flow and also depended on the gas. The mean particle size was determined with an electron microscope. The spectrum for the highly dispersed tin consisted of a single line characteristic of ordinary polycrystalline β-Sn with a chemical shift of 2.6 mm/sec (relative to SnO_2). The probability of the Mossbauer effect f' was measured as a function of the temperature (T) and particle diameter (d) from the area under the spectral absorption curve. The results show that f' diminishes with decreasing particle diameter, starting with d = 600 Å. The temperature dependence is steeper. The variation with particle sizes is connected with the influence of the surface. The Debye temperature is determined

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for the different groups of particles and is found to be 120, 130, 135, and 140K respectively, as well as for tin atoms in the surface layer (100K), which had a thickness of 5 lattice constants. Arguments favoring the decrease of f' accompanying smaller particles and its strong temperature dependence to be associated with surface phenomena and not with any frequency change in the internal-atom spectra for these particles are presented. The authors thank V. A. Myuller for assisting in the preparation of some samples, Yu. I. Fedorov for the electron-microscope determination of the particle sizes, and Yu. I. Petrov for valuable discussions. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 24Feb66/ ORIG REF: 004/ OTH REF: 009

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACC NR: AP7004569 SOURCE CODE: UR/0056/65/049/005/1424/1430

AUTHOR: Suzdalev, I. P.; Gol'danskiy, V. I. Makarov, Ye. F.; Plachinda, A. S.; Korytko, L. A.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Investigation of the dynamics of the motion of tin atoms at the surface of silica gel by means of the Mossbauer effect

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki v. 49, no. 5, 1965, 1424-1430

TOPIC TAGS: Mossbauer effect, silica gel, sorption, tin, chemisorption

ABSTRACT: The authors used the nuclear gamma resonance (Mössbauer effect) method to investigate the dynamics of the motion of tin atoms sorbed on the surface of silica gel. A special cryostat was constructed for temperature measurements. All measurements were made on a nuclear gamma resonance spectrometer with source in the form of $Sn^{119*}O_2$. Analysis of the experimental results indicated that the tin atoms at the surface exist in two states -- the tetravalent and the bivalent. Investigation of the temperature dependence of the Mössbauer-effect probability indicated that the tetravalent tin is fixed on the surface through physical sorption; and the bivalent tin, through chemisorption. Considerable asymmetry of the doublet components was found in the spectrum of

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the tin sorbed on the surface in the form of SnO (surface chemisorption). It was found that the electric-field gradient at the Sn^{119} nucleus in SnO increases with an increase in temperature and significantly exceeds its value for the crystal state of SnO. The following were evaluated on the basis of the experimental findings: the absolute values of the mean square displacements of the $SnO_2 \cdot nH_2O$ molecule on the surface and of tin atoms within the molecule as a function of temperature; the zero-vibration energy of the tin atoms and molecules; the energy at which the bond between molecule and adsorption center on the globule surface disappears; the absolute values of the mean square displacements of tin atoms in SnO molecules in a direction perpendicular or parallel to the surface, as well as their temperature dependence. The authors point out that by extrapolating the absolute values of the mean square displacements as a function of temperature it is also possible to obtain the displacement values at absolute zero temperature, and this in turn makes it possible to evaluate the corresponding vibration frequencies. The value of a temperature dependence such as the one obtained by the authors for physical sorption makes it possible in principle to find the form of the potential well for sorbed atoms or molecules. These questions will be considered by the authors in subsequent publications. The authors express their gratitude to I. Ye. Neymakr, V. M. Chertov, and I. Ya. Garzanov for their interest and aid in the experimental work, and to Yu. M. Kagan for his discussion of the results. (JPRS:

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

ACC NR: AP7000912 (A) SOURCE CODE: UR/0138/66/000/012/0015/0018

AUTHOR: Kim, I. P.; Yegorov, Ye. V.; Gol'danskiy, V. I. Dogadkin, B. A.; Tarasova, Z. N.

ORG: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii); Institute of Chemical Physics AN SSSR (Institut khimicheskoy fiziki AN SSSR); Scientific Research Institute of the Tire Industry (Nauchno-issledovatel'skiy institut shinnoy promyshlennosti)

TITLE: Radiation—induced vulcanization with 20—30 Mev electrons

SOURCE: Kauchuk i rezina, no. 12, 1966, 15-18

TOPIC TAGS: radiation induced vulcanization, fast electron, high energy electron, irradiation vulcanizate, induced radioactivity

ABSTRACT: The radioactivity of rubbers, rubber mixtures, and their ingredients irradiated with 20—30 Mev electrons has been investigated. The study was undertaken because 5—10 Mev electrons, currently used in radiation-induced vulcanization, penetrate only to a small depth (2—4 cm in a substance with a density of 1 g/cm^3) and, therefore, are unsuitable for the vulcanization of large-size products. Theoretical analysis of the problem and experiments showed that: 1) the reactions proceed under the effect of electromagnetic radiation generated as a result of deceleration of fast electrons in the substance; 2) irradiation of rubbers, rubber

 UDC: 678,028:66.085

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mixtures, and their ingredients with fast, 20—30 Mev electrons forms the radioactive isotopes C^{11}, O^{15} and Zn^{63} as a result of γ, n-type photonuclear reactions; 3) owing to the short halflife (minutes or tens of minutes) of these isotopes, the radioactivity which is induced in the irradiated specimens decays in a matter of hours; 4) rubbers, rubber mixtures, and their ingredients are not activated with secondary neutrons; 5) the use of fast, 20—30 Mev electrons for the vulcanization of large-size rubber products presents no danger for personnel, provided that the irradiated products are held in isolation for one day. Orig. art. has: 2 figures and 2 tables.

SUB CODE: 11,20,18/ SUBM DATE: 12Jul65/ ORIG REF: 005/ OTH REF: 002/ ATD PRESS: 5108

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515610018-4"

GOLDAT, S. Yu.

"Direct and reverse mutations in the loci of Yellow Achrate and Scute," Department of Genetics (Chief: Prof. N. P. Dubinin), Institute of Experimental Biology (Dir: Academician N. K. Koltsov), Moscow. (p. 803) by Goldat, S. Yu.

SO: Biological Journal (Biologicheskii Zhurnal) Vol. V, 1936, No. 5