"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, I.M.; CHERNASHKIN, V.G.

Methods for determining the tendency of steel plate for brittle fracture. Zav. lab. 30 no.7:876-879 '64. (MIRA 18:3)

1. Nauchno-issledovatel'skiy institut po montazhnym i spetsial'nym stroitel'nym rabotam.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, I.M.; CHERNASHKIN, V.G.

Investigating the brittleness of structural steel. Avtom. svar. 18 no.4:7-10 Ap '65. (MIRA 18:6)

1. Nauchno-issledovatel'skiy institut po montazhnym i spetsial'nym stroitel'nym rabotam.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

L 45611-65 EWT(m)/EWP(w)/EWA(d)/EPR/T/EWP(t)/EWP(z)/EWP(b) Ps-4 IJP(c)
MJW/JD

ACCESSION NR: AP5010173 UR/0125/65/000/004/0007/0010

AUTHOR: Rozenshteyn, I. M. (Engineer); Chernashkin, V.G. (Candidate of technical sciences)

TITLE: Investigation of the brittleness of structural steel

SOURCE: Avtomaticheskaya svarka, no. 4, 1965, 7-10

TOPIC TAGS: structural steel, steel brittleness

ABSTRACT: Sheet St3 low-carbon, killed, semikilled, and rimmed steels, 6, 12, and 20-mm thick, and tank steel (ChMTU 5232-55) were tested for brittle fracture. By a static initiation of a brittle fracture and testing of H-shaped specimens for double tension, conditions of the brittle-fracture propagation were studied. An experimental plot of the fracture-propagation critical temperature vs. sheet thickness shows that the heavier sheets cannot always ensure reliability of tanks and piping. A better-quality tank steel (finally deoxidized by Al in the ladle) showed the lowest critical temperature; the rimmed steel exhibited the

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L 45611-65

ACCESSION NR: AP5010173

highest critical temperature. A stress of 5—10% of the yield point was sufficient for the spontaneous propagation of an initiated fracture. Orig. art. has: 4 figures.

ASSOCIATION: NIImontazhspetsstroy

SUBMITTED: 23May64 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 004

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

GUGESHASHVILI, M.I.; DAVYDOV, B.I.; KORSHAK, Yu.V.; ROZENSHTEYN, L.D.

Breaking of conjugation in linear polymer chains by heteroatoms with unshared pair electrons. Izv.AN SSSR.Ser.khim. no.9:1703-1705 S '64. (MIRA 17:10)

1. Institut poluprovodnikov AN SSSR i Institut neftekhimicheskogo sinteza AN SSSR.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, I.M.

Incidence of scarlet fever in Melitopol' District (zaporozh'ye Province) during the postwar years. Zhur.mikrobiol.epid. i immun. 29 no.3:127 Mr '58. (MIRA 11:4)

1. Iz Melitopol'skoy rayonnoy sanitarno-epidemiologicheskoy stantsii Zaporozhskoy oblasti.
(MELITOPOL' DISTRICT--SCARLET FEVER)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, I.M.

Studies on nutrition in children's homes [with summary in English]. Vop.pit. 17 no.6:40-43 '58. (MIRA 12:2)

1. Iz Zaporozhskoy gorodskoy sanitarno-epidemiologicheskoy stantsii.
(CHILD,
nutrition (Rus))
(NUTRITION,
in child. homes (Rus))

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

POPOVSKIY, B.V., kand.tekhn.nauk, laureat Leninskoy premii; ROZENSHTEYN, I.M., inzh.; BALITSKIY, V.M., inzh.

Construction of tanks using thickened rolled panels. Mont. i spets. rab. v stroi. 23 no.9:12-16 S '61. (MIRA 14:9)

1. Nauchno-issledovatel'skiy institut stroitel'noy promyshlennosti i Institut elektrosvarki imeni Ye.O.Patona.
(Tanks)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

VARTANYAN, A.T.; ROZENSHTEYN, L.D.

Photoconductivity of indigo. Dokl.AN SSSR 124 no.2:295-297 Ja '59. (MIRA 12:1)

1. Predstavleno akademikom A.N. Tereninym.
(Photoconductivity) (Indigo)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

DRABKIN, I.A.; ROZENSHTEYN, L.D.; GEYDERIKH, M.A.; DAVYDOV, B.E.

Mechanism underlying the thermal conversion of polyacrylonitrile. Dokl. AN SSSR 154 no.1:197-199 Ja'64. (MIRA 17:2)

1. Institut poluprovodnikov AN SSSR i Institut neftekhimicheskogo sinteza AN SSSR. Predstavleno akademikom V.A. Karginym.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

DAVYDOV, B.E.; POPOV, Yu.A.; PROKOF'YEVA, L.V.; ROZENSHTEYN, L.D.

Electrophysical properties of Schiff polybases formed by benzyl and paraphenylenediamine. Izv. AN SSSR. Otd.khim. nauk no.4:760-762 Ap '63. (MIRA 16:3)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut poluprovodnikov AN SSSR.
(Schiff bases--Electric properties) (Polymerization)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

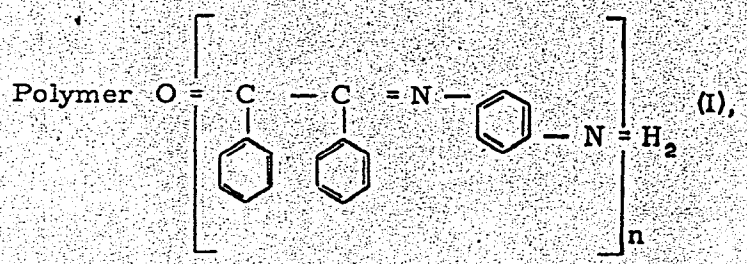
"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTYN, L.D.

AID Nr. 992-9 18 June

ELECTROPHYSICAL PROPERTIES OF POLYMERIC SCHIFF BASES OF BENZIL AND P-PHENYLENEDIAMINE (USSR)

Davydov, B. E., Yu. A. Popov, L. V. Prokof'yeva, and L. D. Rozenshtyn, IN: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 4, Apr 1963, 759-761. S/062/63/000/004/017/022



(I),

representative of a new class of organic semiconductors -- Schiff bases with a congugated bond system -- has been synthesized, and its electric conduction and photoconduction have been studied, at the Institute of Petrochemical

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

AID Nr. 992-9 18 June

ELECTROPHYSICAL PROPERTIES [Cont'd] S/062/63/000/004/017/022

Synthesis and the Institute of Semiconductors, both Academy of Sciences USSR. Polymer I, prepared by bulk polycondensation of benzil with p-phenylenediamine at 250°C in an inert atmosphere, is dark brown and is soluble in dimethylformamide, phenol, and formic, acetic, and phosphoric acids. X-ray analysis showed it to have a crystalline structure. Its molecular weight is 900, corresponding to n = 3 or 4. The electric conductivity of molded specimens of I was measured in a vacuum (10^{-4} mm Hg). The temperature dependence of conductivity obeyed the exponential law. The energy of activation of conductivity ε_T and the preexponential factor σ_0 were found to be $\varepsilon_T = 1.08$ ev, $\sigma_0 = 8.5 \cdot 10^{-4}$ $ohm^{-1} \cdot cm^{-1}$ in the 90 to 115°C range and 0.45 ev, $4.0 \cdot 10^{-8}$ $ohm^{-1} \cdot cm^{-1}$ in the 60 to 90°C range; conductivity at 20°C was $\sigma_{20} = 5 \cdot 10^{-12}$ $ohm^{-1} \cdot cm^{-1}$. The photoconduction of thin films of I, deposited from dimethylformamide at 10^{-5} to 10^{-4} mm Hg onto quartz plates

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ELECTROPHYSICAL PROPERTIES [Cont'd] S/062/63/000/004/017/022

with platinum electrodes separated by a 1-mm gap, was induced by irradiation with white light. The photocurrent of I at 1000 to 1500 v/cm obeyed Ohm's law. The lux-ampere characteristic was described by $i \sim L^n$, where n was 0.5 to 0.6 in the experiment. The photocurrent was exponentially dependent on temperature: $i \sim e^{-\varepsilon_{ph}/kT}$, where ε_{ph}, the thermal energy of photocurrent activation, was 0.19 ev. The ε_{ph} was determined from reversible measurements in the 20 to 75°C range. Thus, the photoelectric properties of I were similar to those of previously studied organic semiconductors. However, the photocurrent kinetics of I was characterized by pronounced polarization phenomena. [NI]

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

YELIGULASHVILI, I.A.; NAKASHIDZE, G.A.; ROZENSHTEYN, L.D.; KHATIASHVILI, A.A.

Nonlinearity effects in the conductance of organic semiconductors caused by the injection of charge carriers. Elektrokhimiia 2 no.1: 107-109 Ja '66. (MIRA 19:1)

1. Institut poluprovodnikov AN SSSR, Leningrad i Institut kibernetiki AN Gruzinskoy SSR. Submitted May 11, 1965.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

L 34822-66 EWT(1)/EWT(m)/EWP(j)/T IJP(c) GG/AT/RM

ACC NR: AP6021604 SOURCE CODE: UR/0020/66/168/005/1041/1043

46
B

AUTHOR: Vidadi, Yu. A.; Rozenshteyn, L. D.

ORG: Institute of Semiconductors, Academy of Sciences, SSSR (Institut poluprovodnikov Akademii nauk SSSR)

21

TITLE: Photodielectric effect in phthalocyanine

SOURCE: AN SSSR. Doklady, v. 168, no. 5, 1966, 1041-1043

TOPIC TAGS: phthalocyanine, organic semiconductor, photodielectric effect, dielectric loss, carrier density, electric capacitance, DIELECTRIC PROPERTY

ABSTRACT: In view of the possibility of obtaining with the aid of the photodielectric effect additional information on the properties of organic semiconductors, the authors studied the photodielectric effect in phthalocyanine, which is one of the most thoroughly studied organic semiconductors. Phthalocyanine layers were produced by sublimation in vacuum on a quartz plate on which a semitransparent platinum electrode was deposited beforehand. The second electrode was aluminum sputtered over the phthalocyanine. The layers were illuminated with focused white light from an incandescent lamp at an incident energy 1.2 mw/mm^2. The investigations were made in a vacuum 10^{-5} - 10^{-4} mm Hg at room temperature and consisted of determining the capacitance and the dielectric loss as functions of the frequency and of the illumination. Comparison with theoretical calculations shows that the photodielectric effect in phthalocyanine is of the second kind (illumination changes both the capacitance and

Card 1/2 UDC: 537.311.52

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

L 34822-66

ACC NR: AP6021604

the conductivity). The tests were made at field intensities for which Ohm's law was not obeyed. The value obtained for the specific conductivity of phthalocyanine in darkness agreed with the published data. It is deduced from the observed increase of the dielectric loss in darkness that the increased conductivity is due to an increase in the carrier density. This report was presented by Academician A. N. Terenin 1 October 1965. Orig. art. has: 4 figures. [02]

SUB CODE: 20/ SUBM DATE: 23Sep65/ ORIG REF: 011/ OTH REF: 006/ ATD PRESS: 5031

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L.D.

The photoelastic effect in polystyrene and its halogen derivatives. N. M. Bazhenov, M. V. Vol'kenshtein, Yu. Ya. Gotlib, and L. D. Rozenshtein. *Zhur. Tekh. Fiz.* 26, 1730-7 (1956).—The rates of isothermal extension and birefringence of films of polystyrene and 6 of its halogen derivatives were investigated: poly(*p*-chlorostyrene), poly(2,5-dichlorostyrene), poly(*o*-chlorostyrene), poly(3,4-dichlorostyrene), poly(*o*-iodostyrene), and poly(*p*-iodostyrene), ranging in mol. wt. from 20,000 to 80,000. Mol. wt. of polystyrene was 180,000. The schematic diagrams of the app. and the exptl. methods were presented. The max. value of the photoelastic coeff., calcd. from the relation $\epsilon = \Delta n/\sigma$, where Δn is birefringence and σ is tension (dynes/sq. cm.), was a const. characteristic of the substance and, in small measure, dependent on the original tension and temp. The values of the effective anisotropies of polystyrene, poly(*p*-chlorostyrene) and poly(3,4-dichlorostyrene) polarizabilities agreed, if it was assumed that the internal rotations in these mols. had similar characteristics. The nature of the internal rotation in poly(*o*-chlorostyrene) and poly(2,5-dichlorostyrene) was essentially different from that of the above-mentioned polymers. Paul Puliyenko

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

AYRAPETYANTS, Aleksandra Vasil'yevna; ROZENSHTEYN, Leonid Davidovich; FREGER, D.P., red.izd-va; BELOGUROVA, T.A., tekhn. red.

[Organic semiconductors] Organicheskie poluprovodniki. Leningrad, Leningr. dom nauchno-tekhn. propagandy, 1963. 32 p. (Seriia "Poluprovodniki, no.4) (MIRA 16:12)
(Semiconductors)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ACCESSION NR: AP4041171 S/0062/64/000/006/1113/1115

AUTHOR: Drabkin, I. A.; Rozenshteyn, L. D.

TITLE: Investigation of the thermal conversion of polyacrylonitrile by the photoconduction method

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 6, 1964, 1113-1115

TOPIC TAGS: polyacrylonitrile, pyrolized polyacrylonitrile, photoconductor, organic semiconductor, semiconducting polymer, pyrolysis

ABSTRACT: Polyacrylonitrile (PAN) has been pyrolized and the rise of its photoconductivity and that of conjugation as a function of pyrolysis time and temperature have been correlated. Photoconductivity was measured for PAN films 2—3 μ thick (deposited from dimethylformamide) illuminated with monochromatic light. Pyrolysis was carried out at 10^{-6}—10^{-5} mm Hg at 200, 250, and 300C. Photo- and dark conductivity were followed in the course of pyrolysis at approximately 10^4 v/cm and plotted versus pyrolysis time at each of the three pyrolysis temperatures. The ambient temperature dependence of photo- and dark conductivity of the pyrolized PAN was also plotted. It was found

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ACCESSION NR: AP4041171

that photoconductivity appears at a pyrolysis temperature of 200C. Comparison of the pyrolysis time—temperature dependence of photoconductivity with such a dependence [obtained in an earlier study] for double bond concentration indicated that double bond formation is a sufficient condition for the appearance of electronic conductivity in PAN. The research was conducted at the Institute of Semiconductors, Academy of Sciences SSSR. Orig. art. has: 2 figures.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences SSSR)

SUBMITTED: 06Dec63 / ATD PRESS: 3041 ENCL: 00

SUB CODE: SS, OP NO REF SOV: 003 OTHER: 000

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

VARTANYAN, A.T.; ROZENSHTEYN, L.D.

Comparison of the thermal activation energies of electric conductivity with the absorption and phosphorescence spectra of a number of organic compounds. Izv.AN S.SR. Ser. fiz. 25 no.3:428-430 Mr '61. (MIRA 14:2)

(Phosphors)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

DRABKIN, I.A.; ROZENSHTEYN, L.D.

Study of the thermal conversion of polyacrylonitrile by the method of photoconductivity. Izv. AN SSSR. Ser. khim. no.6:1113-1115 no.6: Je '64. (MIRA 17:11)

1. Institut poluprovodnikov AN SSSR.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTRAUKH, L.S., prof (Moskva); APOYAN, V.T.

Method and technique for transosseous phlebography of the thorax. Vest. rent. i rad. 38 no.6:27-33 N-D '63. (MIRA 17:6)

1. Iz 2-y kafedry klinicheskoy khirurgii (zav.- prof. B.K. Osipov) i 2-y kafedry rentgenologii (zav.- prof. Yu.N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey (rektor M.D. Kovrigina).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

Rzenshteyn, L.D.

K

USSR / Optics

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10353

Author : Bazhenov, N.M., Vol'kenshteyn, M.V., Gotlib, Yu.Ya., Rosenshteyn, L.D.
Inst : Not Given
Title : Photoeleastic Effect in Polystyrol and Its Halogen Derivatives.

Orig Pub: Zh. tekhn. fiziki, 1956, 26, No 8, 1730-1737

Abstract: The photoelastic effect (PE) was measured in polystyrol (I) (130000), polyparachlorostyrol (II) poly- 2.5 dichlorostyrol (III) (60000), polyorthochlorostyrol (IV) (80200), poly-3.4 dichlorostyrol (V) (30000), polyorthoiodostyrol (VI) (20000) and polyparaiodostyrol (VII) (32000). The numbers in the parentheses represent the molecular weights. The PE was studied in tension of thin films by constant load and at temperatures above the vitrification temperature. With the aid of a setup with a polarization microscope, simultaneous measurements were made of the elongation $\Delta l/l$, the birefringence, Δn, and the true load σ. The PE in vitrified films was measured in a photoelectric

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

USSR / Optics K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10353

setup. The time dependences of $\Delta l/l$, Δ n, and the photoelastic coefficient $\mathcal{E} = \Delta n/\sigma$ were obtained. The tension curves have a characteristic S-shape form with a relative saturation, this being due to the presence of a labile lattice in the block linear polymer. The step-like character of the tension of I discloses the damage to the lattice structure and formation of new labile nodes. $\mathcal{E}$ rapidly reaches its maximum value and diminishes only slightly upon further tension. $\mathcal{E}_{max}$ is practically independent of σ_{init} over a wide range of σ_{init} (for II: 2 -- 18 x 10^6 dyne/cm^2). The average values of $\mathcal{E}_{max}$ were used to find the effective anisotropic polarizabilities of the chain $\Delta\alpha$ (Treloire, L. Physics of Elasticity of Rubber , IL, 1953): I -- 140, II -- 210, III -- 170, IV -- 130, V -- 340 x 10^{-25} cm^3. In accordance with the theory (Gotlib Yu. Ya., Volkenshteyn, M.V., Byutnor, E.K., Dokl AN SSSR, 1954, 99, No 6, 935), the known value of η (the average cosine of the angle of internal rotation about the bond C-C in I) and the value of $\Delta\alpha$ were used to determine $\mu = \overline{\cos^2 \psi'}$ (ψ' is the angle of

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USSR / Optics K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10353

rotation of the phenyl ring), after which these values of μ and ν were used to calculate $\Delta\alpha$ for II -- VII. Satisfactory agreement with experiment was obtained for II and V, which indicates a similarity in the conditions of internal rotation in I, II, and V. For II and IV, which contain chlorine in the ortho position, the calculated values of $\Delta\alpha$ are greater than those observed, this being due to the greater resistance to rotation of the suspended weight.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

24(3)

AUTHORS: Vartanyan, A. T., Rozenshteyn, L. D. SOV/20-124-2-14/71

TITLE: The Photoconductivity of Indigo (Fotoprovodimost' Indigo)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 2, pp 295-297 (USSR)

ABSTRACT: As far as the authors know, the electric and photoelectric properties of indigo have hitherto not been investigated. The present paper shows that indigo possesses photoconductivity and is a typical organic semiconductor. Indigo is nearly insoluble in the usual readily volatile solvents. Therefore layers were investigated which had been produced by sublimation of the dye in a vacuum ($\sim 10^{-5}$ mm) at a temperature of 130-140° C. These layers were located on the surface of a quartz vessel upon which platinum electrodes had previously been fitted. Amperages were measured by means of a direct current amplifier, and the light was monochromatized by means of a mirror monochromator ISP-17A. The relative spectral distribution of the energy inciding upon the layer was measured by means of a thermopile. Dark conductivity increases with increasing temperature. The temperature dependence of the dark current, which was determined

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within the intervalof 40-110° C, satisfies the equation $i_m = i_o \exp(-\varepsilon_m/2kT)$, which holds in the case of many dyes and pigments. Under vacuum conditions the activation energy has the value $\varepsilon_m = 1.75 \pm 0.05$ ev , which agrees satisfactorily with the absorption spectrum of a solid indigo layer produced by sublimation. Under vacuum conditions the exposure of indigo layers by means of visible light increases conductivity within the range of absorption. In the case of exposure with monochromatic light conductivity may be increased by the dozen- or hundredfold. Also if oxygen is supplied, indigo conductivity increases, in which case the increase depends on the pressure and the duration of the action of the gas. In a vacuum as well as in an oxygen atmosphere the time necessary for the development of a steady photocurrent during exposure (and for the decrease of the photocurrent in the dark) is less than the time constant of the amplifier circuit.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

The Photoconductivity of Indigo SOV/20-124-2-14/71

The temperature coefficient of the photocurrent is positive. The shape of the spectral curve of photoelectric sensitivity depends to a considerable extent on the thickness of the indigo layer. The optical activation energy is $\sim$1.79 ev, which agrees well with the thermal activation energy of dark conductivity. There are 2 figures and 12 references, 7 of which are Soviet.

PRESENTED: October 2, 1958, by A. N. Terenin, Academician

SUBMITTED: September 25, 1958

Card 3/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ACCESSION NR: AP4010763 S/0020/64/154/001/0197/0199

AUTHOR: Drabkin, I. A.; Rozenshteyn, L. D.; Gederikh, M. A.; Davy*dov, B. E.

TITLE: Mechanism of thermal conversion of polyacrylonitrile

SOURCE: AN SSSR. Doklady*, v. 154, no. 1, 1964, 197-199

TOPIC TAGS: polyacrylonitrile, heat treatment, thermal conversion mechanism, absorption spectra, conjugated system, conjugated nitrile structure, semiconductor

ABSTRACT: The absorption spectra of polyacrylonitrile were studied to confirm earlier assumptions (A. V. Topchiyev, M. A. Geyderikh i dr. DAN 128, 512 (1959)) that heat treatment causes formation of conjugation and the development of semiconductor properties. The polyacrylonitrile obtained by oxidation-reduction polymerization having a molecular weight of 270,000 was cast in film form from dimethylformamide. Absorption spectra down to 240 mμ were obtained working

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ACCESSION NR: AP4010763

under 10^{-5} to 10^{-6} mm. Hg. There is no change on heating up to 200C but, on heating to 200-250C, the C ≡ N bond in the IR range disappears simultaneously with formation of the U. V. (350 mμ) band for a conjugated system, with conjugation along the nitriles. In this range increased temperatures only accelerate this reaction. At higher temperatures (300C) another change occurs - a sharp increase in absorption in the 450-600 mμ range with no further change at 350C, possibly indicating consolidation of the conjugated structure. Further work on heat treatment of oriented polyacrylonitrile and on stereoregular polymers is to be done. Orig. art. has: 2 figures and 1 equation

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Semiconductor Institute, Academy of Sciences SSSR); Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petrochemical Synthesis, Academy of Sciences SSSR)

SUBMITTED: 26Jun63 DATE ACQ: 10Feb64 ENCL: 00

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Card 2/2

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L 8777-65 EWT(1)/EPA(s)-2/EWG(k)/EWT(m)/EPF(c)/EWP(j)/T Pz-6/Pc-4/Pr-4/
Pt-10 IJP(c)/RPL/RAEM(t)/ESD(dp)/ESD(t)/AFWL/ASD(a)-5/AT/RM

ACCESSION NR: AP4045801 S/0062/64/000/009/1703/1705

AUTHOR: Gugeshashvili, M. I.; Davy*dov, B. E.; Korshak, Yu. V.; Rozenshteyn, L. D.

TITLE: Interruption on conjugation in linear polymer backbone by hetero atoms with unshared electrons

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 9, 1964, 1703-1705

TOPIC TAGS: organic semiconductor, semiconducting polymer, conjugated polymer, heterorganic polymer

ABSTRACT: A study was undertaken to determine the effect of hetero atoms in the backbone of polyazines investigated earlier on the activation energy for conduction. Diketones (monomers of polyazines) were used. Absorption spectra of bis(4-acetylphenyl) ether or sulfide, polyazines based thereon, ethylenedioxybis(4-acetylbenzene), and [oxybis(ethyleneoxy)]bis(4-acetylbenzene) were recorded. Comparison of these spectra showed that conjugation is interruped by the oxygen or sulfur atoms in the monomers and the polymers. Measurements of the temperature dependence of conductivity were carried out for

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ACCESSION NR: AP4045801

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sublimed thin-filmed samples of the diketones in air and vacuum, and compared with such data for 4, 4'-diacetylbiphenyl, which is free of hetero atoms. It was concluded that the high activation energies for conduction are due to interruption of conjugation by the hetero atoms. Orig. art. has: 3 figures and 3 formulas.

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences SSSR); Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Institute of Petrochemical Synthesis, Academy of Sciences SSSR)

SUBMITTED: 30Jan64 ATD PRESS: 3111 ENCL: 00

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

L 46182-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Pc-4/Pr-4/Ps-4/Pt-7/Peb/Pu-4 IJP(c) JD/AT/RM

ACCESSION NR: AP5005897 S/0020/65/160/003/0635/0637

AUTHORS: Vannikov, A. V.; Demidova, G. N.; Rozenshteyn, L. D.; Bakh, N. A.

TITLE: Photoconductivity of organic semiconductors based on polyethylene

SOURCE: AN SSSR. Doklady, v. 160, no. 3, 1965, 635-637

TOPIC TAGS: photoconductivity, semiconductor, organic semiconductor, polyethylene/DKSSh 250 xenon lamp, EMU 3 amplifier

ABSTRACT: To continue the work on semiconductive properties of polyethylene by A. V. Vanikov and N. A. Bakh (DAN, 149, 357, 1963) and by A. V. Vanikov (DAN, 152, 905, 1963), the photoconductivity of polyethylene samples prepared by the method described by N. A. Bakh, V. D. Bityukov, A. V. Vannikov, and A. D. Grishina (DAN, 144, 135, 1962) was measured. Three specimens (1- without heat treatment, 2 and 3 heated at 360 and 430C respectively) were tested between platinum electrodes in a vacuum of $\approx 10^{-5}$ mm Hg under monochromatic light from a xenon lamp (DKSSh-250). Since most organic semiconductors are high-resistance devices, an amplifier (EMU-3) with a sensitivity of 1.5×10^{-14} amp/division was used which permitted observation of photoconductivity in all three samples (400 volts were applied). The values of

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the observed photocurrent depended on the wavelength of the incident light ($\sim 2.2 - 90.10^{-14}$ for a wavelength $\lambda = 600$ mμ and an incident energy of ~ 6 m watt/cm^2). It was found that the photoconductivity increased with heat treating (samples 2 and 3) and that up to the full voltage of 400 v Ohm's law was obeyed. Measurements of spectral absorption and photoelectric sensitivity show that the curves drop sharply between $\lambda = 500$ and 800 mμ and approach low constant values at higher wavelengths. The temperature dependence of the photoconductivity for several wavelengths of incident light is shown in Fig. on the Enclosure. Orig. art. has: 3 figures.

ASSOCIATION: Institut elektrokhimii AN SSSR (Electrochemical Institute, AN SSSR); Institut poluprovodnikov AN SSSR (Semiconductor Institute, AN SSSR)

SUBMITTED: 07Jul64 ENCL: 01 SUB CODE: OC

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L.D.; VARTANYAN, A.T.

Surface recombination in layers of photoconducting organic dyes. Dokl. AN SSSR 134 no.3:567-570 S '60. (MIRA 13:9)

1. Predstavleno akad. A.N. Tereninym.
(Dyes and dyeing) (Photoconductivity)

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68979

AUTHORS: Vartanyan, A. T., Rozenshteyn, L. D.

S/020/60/131/02/017/071
B013/B011

TITLE: On the Participation of the Excited Singlet State in the Electrical Conductivity of a Series of Organic Semiconductors

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 2, pp 279 - 282 (USSR)

ABSTRACT: The aim of the present paper is that of determining the electrons (which are situated either on an excited singlet level or on a triplet level) that cause electrical conductivity in the dark, that is, in other words, whether the activation energy of electrical conductivity in the dark corresponds to the height of the triplet level or of the excited singlet level. Reference is made to a new idea advanced by A. N. Terenin (Ref 8) on the nature of photoconductivity. The application of data concerning the phosphorescence of solutions to the solid state is said to be unjustified. The objects investigated here are supposed, on the one hand, to be phosphorescent in the solid state, and on the other hand, the distance between the triplet level and the excited singlet level is expected to be as many times greater as possible compared to the error in measurement ε_m (here $\sim$ 0.1 ev). The investigation was therefore made on benzophenone, anthranilic acid, phenyl anthranylic acid, as well as on

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On the Participation of the Excited Singlet State in the Electrical Conductivity of a Series of Organic Semiconductors

S/020/60/131/02/017/071
B013/B011

3-acetyl amine-N methyl phthalimide, 3-acetyl amine- N phenyl phthalimide, and 3-benzoyl amine- N methyl phthalimide. Moreover, the electrical conductivity of fluorescein as well as of some other dyes was investigated. Sufficiently thick ($\sim 50\mu$) and dense layers were prepared by sublimation of the substance in high-vacuum ($\sim 10^{-5}$ mm). These layers were sublimated on the surface of a quartz vessel. The voltage source was a dry-cell battery (560 v). In order to be able to measure the absorption spectra, the layers were applied to a quartz plate which, in turn, was fastened to a rotating faceplate. The results of measuring the temperature dependence of electrical conductivity are reproduced in figure 2. The wavelengths corresponding to the thermal activation energies ε_m are in good agreement with the longwave drops of the absorption curves. The totality of the results obtained is indicative of the following: Electrical conductivity of the organic semiconductors investigated occurs on an excited singlet level. This also holds for thionine, crystal violet, phenosafranine, etc. The attribution of ε_m to the excited singlet state leads to the following assumption: This relatively

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On the Participation of the Excited Singlet State in the Electrical Conductivity of a Series of Organic Semiconductors

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slight disturbance is sufficient for the formation of a certain generalized zone within the boundaries of this state. Dark conductivity is found in this generalized zone. The authors thank V. V. Zelinskiy and I. I. Reznikova for having prepared the high-purity phthalimides, and V. L. Yermolayev for having supplied the instrument used to measure the phosphorescence spectra, and also for advice given. There are 2 figures, 1 table, and 10 references, 9 of which are Soviet.

PRESENTED: November 20, 1959, by A. N. Terenin, Academician

SUBMITTED: October 30, 1959

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S/048/61/025/003/044/047
B104/B203

9,4300 (1138,1164,1395)

AUTHORS: Vartanyan, A. T. and Rozenshteyn, L. D.

TITLE: Comparison of the thermal activation energy of electrical conductivity with the absorption spectra and phosphorescence spectra of layers of a number of organic compounds

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 3, 1961, 428-430

TEXT: This paper was read at the 9th Conference on Luminescence (Crystal Phosphors) in Kiyev, June 20-25, 1960. The authors determined the activation energy from the temperature dependence of the electrical conductivity, which is described for organic semiconductors by the formula $\sigma = \sigma_0 \exp(-\varepsilon_T/2kT)$, where ε_T is the thermal activation energy. Fig. 1 shows the temperature dependence of the dark conductivity for a number of substances. Table 1 compiles the results of measurement for a great number of compounds. The spectral range (indicated in Column 5) in which the longwave drop of the spectral absorption curve occurs corresponds, according

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Comparison of the thermal...

to the authors' opinion, to a singlet-singlet transition in light absorption. The energy corresponding to the shortwave edge of the fluorescent band is given in Column 6, and permits a determination of the height of the triplet level in that state of the compound in which it was investigated. A comparison of results shows that the carriers participating in dark conduction are produced in singlet-singlet electron transitions. There are 1 figure, 1 table, and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc.

Соединение	Температурный интервал, °C	ε_T, eV	λ, соответствующая ε_T, mμ	Участок длинноволнового спада спектральной кривой поглощения твердого слоя, mμ	Энергия, соответствующая коротковолновой границе полосы фосфоресценции твердого слоя, eV
1	2	3	4	5	6
Малахитовый зеленый	40÷112	1,65	749	655÷750	
Яркий зеленый	66÷110	1,71	722	659÷740	
Фуксин	40÷ 85	1,79	690	580÷700	
Кристаллический фиолетовый	63÷100	1,78	694	630÷710	
Водный голубой	19÷147	1,75	706	610÷750	
Уранин	54÷153	2,05	603	510÷605	
Эозин	60÷154	2,30	536	520÷590	
Эритрозин	64÷161	2,22	566	530÷600	

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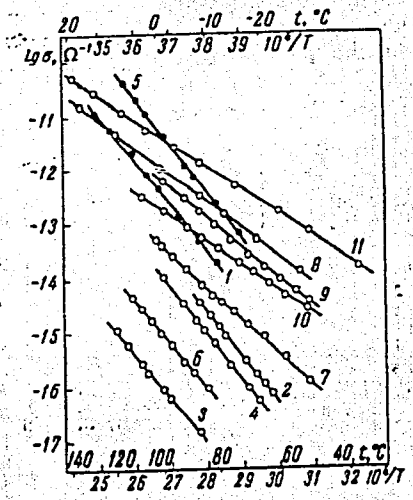
Comparison of the thermal...

Legend to Fig. 1: Temperature dependence of electrical conductivity of solid layers. (1) (Upper axis of abscissas) benzophenone, (2) anthranilic acid, (3) phenyl anthranilic acid, (4) 3-acetyl-amino-N-methyl phthalimide, (5) 3-acetylamino-N-phenyl phthalimide, (6) 3-benzoyl-amino-N-methyl phthalimide, (7) fluorescein, (8) uranine, (9) phosphine, (10) indigotin, (11) soluble blue.



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Comparison of the thermal...

Legend to Table 1: (1) Compound, (2) temperature range, (3) ε_T in ev, (4) λ corresponding to ε_T in mμ, (5) spectral part in which the longwave drop of the absorption curve for the solid layer occurs, (6) energy corresponding to the shortwave edge of the phosphorescent band, in ev. Compounds in Column 1 from top to bottom: malachite green, bright green, fuchsine, crystalline violet, soluble blue, uranine, eosin, erythrosine, phloxine, Bengal green, rhodamine B, colorless product of rhodamine B, rhodamine 6G, fluorescein, phenosafranine, tripaflavine, phosphine, capri blue, Nile blue, thionine, indigotin, pinacyanol, Orthichrome T, phthalocyanine without metal, copper phthalocyanine, zinc phthalocyanine, benzophenone, anthranilic acid, phenyl anthranilic acid, 3-acetyl-N-phenyl phthalimide, 3-acetylamino-N-methyl phthalimide, 3-methoxy-N-methyl phthalimide, 3-hydroxy-N-methyl phthalimide, 4-amino phthalimide, 4 amino-N-cyclohexyl phthalimide.

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Comparison of the thermal...

Флоксин	60÷160	2,07	597	530÷600	
Бенгальский розовый	52÷153	2,05	603	560÷610	
Родамин B	52÷100	2,10	588	578÷630	
Бесцветный продукт родамина B	100÷155	3,70	334	317÷350	
Родамин 6 G	53÷106	2,07	597	555÷620	
Флуоресцеин	51÷103	2,44	506	490÷530	
Феносафранин	64÷131	2,08	595	570÷620	
Трипафлавин	58÷100	2,3	536	480÷540	
Фосфин	55÷100	2,26	546	408÷550	
Капри синий	18÷ 76	1,67	740	700÷780	
Нильский голубой	10÷100	1,63	758	680÷780	
Тионин	45÷118	1,83	675	650÷700	
Индиго	40÷110	1,75	705	660÷720	
Пинацианол	35÷ 87	1,90	650	642÷720	
Ортохром T	40÷ 80	2,05	603	584÷640	
Фталоцианин без металла	60÷163	1,7	725	688÷790	
Фталоцианин меди	88÷158	1,7	725	685÷780	
Фталоцианин цинка	109÷160	1,7	725	714÷810	
Бензофенон	—23÷ 14	3,34	370	330÷400	2,8 [6]
Антраниловая кислота	62÷ 86	3,38	366	342÷400	2,8
Фенилантраниловая кислота	87÷119	3,30	375	375÷430	2,7
3-ацетиламино-N-метилфталимид	67÷100	3,46	357	350÷390	2,9
3-ацетиламино-N-фенилфталимид	54÷124	3,50	353	340÷400	2,7
3-бензоиламино-N-метилфталимид	84÷112	3,28	377	360÷410	2,8
3-метокси-N-метилфталимид	54÷ 78	3,18	388	355÷390	
3-гидрокси-N-метилфталимид	60÷ 91	3,8	325	350÷390	
4-аминофталимид	123÷151	2,78	444	410÷510	
4-амино-N-циклогексилфталимид	73÷100	2,90	426	375÷440	

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L 59540-65 EWT(m)/EWP(i)/EWP(j)/T/EWP(t)/EWP(b) Pc-4/Pi-4 DS/JD/RM

ACCESSION NR: AP5016828 UR/0364/65/001/006/0713/0715

621.315.592:547

47
45
B

AUTHOR: Boguslavskiy, L. I.; Rozenshteyn, L. D.

TITLE: Comparison of the optical and electrical properties of films of polymeric complexes (I) of tetracyanethylene (TCE) with metals

SOURCE: Elektrokhimiya, v. 1, no. 6, 713-715

TOPIC TAGS: polymer, tetracyanethylene-Ni complex, tetracyanethylene-Cu complex, film, electrical conductivity, absorption spectrum

ABSTRACT: The role of TCE molecules in electrical conductivity of films of polymeric complexes of TCE with Cu and Ni was studied qualitatively by comparing the changes in electron absorption spectra and in the energy of activation of electrical conductivity as a function of thermal treatment. The films were prepared by reacting vapors of TCE with metal powders supported on quartz at 250°C for 10 hours. Spectra were taken with a CF-4 spectrophotometer. The thermally untreated TCE-Cu polymeric complex is made up of larger molecules than the TCE-Ni complex. After 2-hour thermal treatment of 490°C under 10^{-5} mm Hg the absorption spectra of both

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Cu- and Ni- complexes flattened which indicates an increase in the number of large molecules. The more flattening of the absorption spectra after thermal treatment, the more steep the absorption curve of the untreated complex. For the thermally untreated condition, the absorption curve of TCE-Ni complex is steeper than the absorption curve of the TCE-Cu complex. There is a relationship between thermal dependence of the absorption spectra of TCE-metal complexes and of the energy of activation of electrical conductivity (E). For TCE-Cu complex E (equal to 0.32 ev) does not change due to thermal treatment. For TCE-Ni complex E dropped from 0.46 to 0.01 ev as a result of thermal treatment. Orig. art. has: 2 figures.

ASSOCIATION: Institut electrokhimii Akademii nauk SSSR (Institute of Electrochemistry, Academy of Sciences, SSSR); Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences, SSSR)

SUBMITTED: 09Feb65 ENCL: 00 SUB CODE: MT, OP

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Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

L 62793-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/EWA(d) Pc-4/Pr-4/Ps-4 WW/JAJ/RM

ACCESSION NR: AP5018457 UR/0364/65/001/007/0876/0880

621.315.592:547

AUTHOR: Davydov, B. E.; Demidova, G. N.; Nasirov, F. M.; Pirtskhalava, R. N.; Rozenshteyn, L. D.

35
32
B

TITLE: Synthesis of polydiphenyldiacetylenes and their electrical and physical properties

SOURCE: Elektrokhimiya, v. 1, no. 7, 1965, 876-880

TOPIC TAGS: polymerization synthesis, acetylene, thermal stability, catalysis, photoelectric current

ABSTRACT: The article is concerned with the investigation of the properties of thermally polymerized diphenyldiacetylene, having the following structure

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The fact that all hydrogen atoms of the main chain are replaced by phenyl groups accounts for its solubility in chloroform, benzene, ether, dioxane, dimethylformamide and for its high thermal stability. It may be heated as high as 500° C without any significant decomposition. The polymer is a nonfusable dark brown substance. When it is deposited from solution on a substrate it forms a relatively strong film. The kinetic polymerization curves at different temperatures are shown in Fig. 1 of the Enclosure. The cryoscopic data indicates that the molecular weight of the polymer is 1100. Experiments with polymer films show that upon interaction with oxygen under the influence of light this polymer does not have a tendency to form inner peroxides. Diphenyldiacetylene was also polymerized catalytically using a complex catalyst, produced during interaction of triethylaluminum and vanadyl acetylacetonate. The polymer obtained was also soluble in benzene, chloroform and other organic solvents. The thermal stability of this polymer was somewhat lower than in the polymers produced by thermal initiation. The lower stability is explained by the presence of the following structures in the chain

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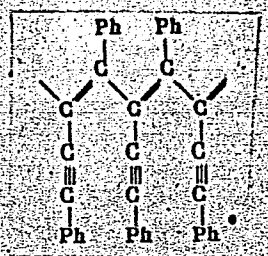
ACCESSION NR: AP5018457



The photoelectric conductivity of thermal polymers is observed in the region where they absorb light. The spectral dependence of the photoelectric current reduced to the same amount of energy incident on the specimen is in good agreement with the absorption spectrum (Fig. 2 of the Enclosure). Catalytic polymers displayed no photoelectric conductivity. An attempt was made to measure the dark current, but it was possible to record it only when the field strength exceeded $2 \cdot 10^4$ V/cm. Orig. art. has: 5 figures.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR (Petrochemical Synthesis Institute Academy of Sciences SSSR)

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ACCESSION NR: AP5018457

Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors Academy of Sciences SSSR)

SUBMITTED: 09Feb65 ENCL: 02 SUB CODE: OC, EM

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ACCESSION NR: AP5018457

ENCLOSURE: 01

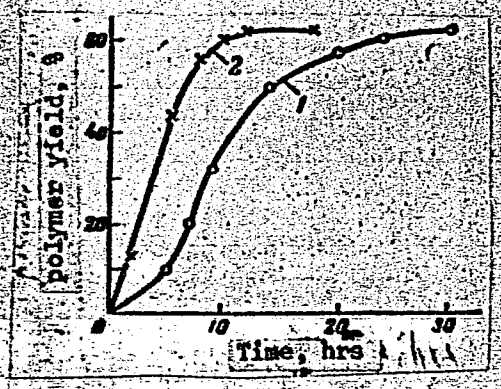

Fig. 1. Kinetic curves for thermal polymerization of diphenyldiacetylene at 106° C (1) and 133° C (2).

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ACCESSION NR: AP5018457

ENCLOSURE: 02

Fig. 2. Spectral absorption curves and photoelectric current per unit incident energy, of polydiphenylacetylene, heated at 150° C for 3 hrs 45 min. The curves on the right are given on smaller scale.

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L 65177-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/T/EWA(h)/EWA(c) IJP(c)/
RPL JW/AT/RM

ACCESSION NR: AP5022150 UR/0364/65/001/009/1145/1149
621.315.592:547 9/85 B

44,55 44,55 44,55

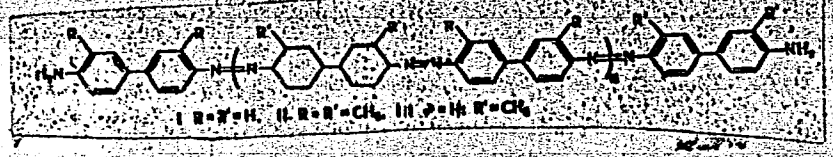
AUTHOR: Demidova, G. N.; Pirtskhalava, R. N.; Rozenshteyn, L. D.; Terpugova, M. P.; Kotlyarevskiy, I. L. 44,55

TITLE: Absorption spectra, electrical conductivity, and photoconductivity of polyazopolyarenes

SOURCE: Elektrokhimiya, v. 1, no. 9, 1965, 1145-1149

TOPIC TAGS: organic semiconductor, organic photoconductor, photoconductivity, electric conductivity, conjugated polymer 44,55

ABSTRACT: Electrical conductivity, photoconductivity and absorption spectra have been measured for a number of polyazopolyarenes:



I R=R'=H, II R=R'=CH₃, III R=H, R'=CH₃

Card 1/6

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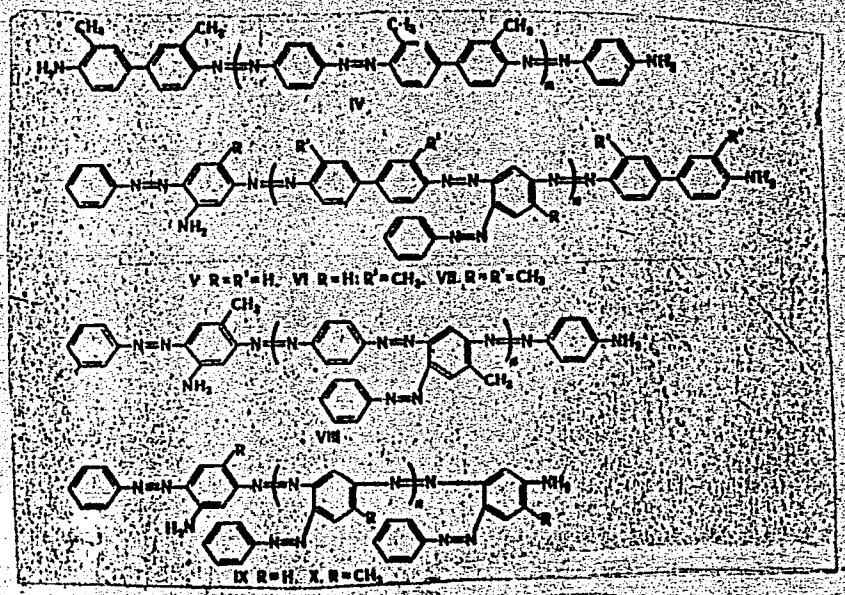
L 65177-65

ACCESSION NR: AP5022150



Card 2/6

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L 65177-65

ACCESSION NR: AP5022150 6

The materials were prepared by oxidative polycondensation or copolycondensation of aromatic diamines in the presence of cuprous chloride catalyst. The study of these compounds was prompted by the varying character of conjugation among them. The properties of the compounds are shown in Table 1 of the Enclosure. Electrical measurements were carried out with molded specimens. The temperature dependence of electrical conductivity obeyed an exponential law. For some of the compounds the log σ versus 1/T curves showed a break and hence two values of E and σ_0 are given for them in Table 1. Photoconduction was studied with film specimens. In the field range used (up to 5×10^4 v/cm) the photocurrent obeyed Ohm's law. For most films the lux-ampere characteristic was linear. The photocurrent was an exponential function of temperature. The spectral regions of photoconductivity corresponded to spectral regions of optical absorption. Comparison of absolute values of photocurrent for the polymers revealed a sharp drop in photocurrent on going to compounds with decreasing conjugated chain length. Orig. art. has: 6 figures, 1 table, and 5 formulas. [SM]

44,55

ASSOCIATION: Institut poluprovodnikov Akademii nauk SSSR (Institute of Semiconductors, Academy of Sciences SSSR); Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemical Kinetics and Combustion, Siberian Department, Academy of Sciences SSSR) 44,55

Card 3/6

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

L 65177-65

ACCESSION NR: AP5022150

SUBMITTED: 09Feb65 ENCL: 02 SUB CODE: MT, GC

NO REF SOV: 006 OTHER: 000 ATD PRESS: 4089

Card 4/6

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L 65177-65
ACCESSION NR: AP5022150

ENCLOSURE: 01

Table 1. Properties of polyazopolyarenes

Diamines	Polymer	mp	Solubility	Electrical conductivity data			
				E_1, ev	σ_{01}, ohm^{-1} cm^{-1}	E_2, ev	σ_{02}, ohm^{-1} cm^{-1}
Benzidine	I	Does not melt until 500C	Partial in dimethylformamide	0.65 t<230°	$1.15 \cdot 10^{-4}$	0.78	2.9
O-Toluidine	II	"	Partial in acetone, benzene, chloroform, dioxane			1.4	$3.65 \cdot 10^{2}$
o-Toluidine, benzidine	III	288C	Partial in chloroform, dioxane	0.59 t<130°	$7.2 \cdot 10^{-7}$	1.6	$1.82 \cdot 10^{11}$
o-Toluidine, p-phenylenediamine	IV	249C	Partial in acetone, chloroform, benzene			2.1	$1.15 \cdot 10^{13}$
Benzidine, chrysoidene	V	352C	Partial in chloroform, acetone			2.35	$1.15 \cdot 10^{12}$

Card 5/6

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L 65177-65

ACCESSION NR: AP5022150

ENCLOSURE: 02

Table 1. Properties of polyazopolyarenes (Cont.)

Diamines	Polymer	mp	Solubility	Electrical conductivity data				
				E_1, ev	σ_{01}, cm^{-1} ohm^{-1}		E_2, ev	σ_{02}, cm^{-1} ohm^{-1}
o-Toluidine, chrypoidene	VI	286C	Partial in chloroform, acetone	0.84 t<155°	$1.1 \cdot 10^{-8}$		2.1	$1.8 \cdot 10^{11}$
o-Toluidine, methylchrysoidene	VII	212—217	Partial in benzene, acetone, chloroform, dimethylformamide				2.95	$5 \cdot 10^{22}$
p-Phenylenediamine	VIII	209—215	Partial in benzene, acetone, chloroform, dimethylformamide				3.1	$2 \cdot 10^{22}$
Chrysoidene	IX	276—278	In benzene, cumene, acetone, chloroform				3.5	$1 \cdot 10^{25}$
Methylchrysoidene	X	152	In benzene, cumene, acetone, chloroform				3.14	$6.2 \cdot 10^{25}$

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

VANNIKOV, A.V.; [illegible], G.N.; [illegible], L.I.; [illegible], N.A.

Photoconductivity of organic semiconductors based on polyethylene. Dokl. AN SSSR 160 no.3:635-637 Ja '65. (MIRA 18:3)

1. Institut elektrokhimii AN SSSR i Institut poluprovodnikov AN SSSR. Submitted July 18, 1964.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

VARTANYAN, A.T.; ROZENSHTEYN, L.D.

Thermal activation energies of dark conduction in organic compounds. Fiz. tver. tela 3 no.3:713-722 Mr '61. (MIRA 14:5)

1. Gosudarstvennyy opticheskiy institut imeni S.I. Vavilova, Leningrad.
(Electric conductivity) (Organic compounds--Electric properties)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

83898

S/020/60/134/003/008/020
B019/B060

9,4177
26,1512

AUTHORS: Rozenshteyn, L. D., Vartanyan, A. T.

TITLE: A Study of the Surface Recombination in Layers of Organic Dyes - Photoconductors

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 3, pp. 567 - 570

TEXT: By way of introduction the authors discuss the results yielded by investigations, most of which were conducted by the authors themselves. The results concern the photoconductivity of inorganic and organic semiconductors. The formula derived by De Vore (Ref. 6) for the photocurrent is given and discussed. This formula is regarded as being an expression characterizing the change in the photocurrent on a variation of sample thickness l at a determined wavelength of incident light. The authors wanted to carry out a quantitative evaluation of De Vore's theory for the surface recombination rate in linear photoconductors. They further wanted to determine lifetime, diffusion coefficient, and mobility of the photocurrent carrier. For this purpose, they examined variously thick

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A Study of the Surface Recombination in Layers of Organic Dyes - Photoconductors

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B019/B060

trypaflavine and pinacyanol layers for their spectral photoconductivity in vacuum. Fig. 1 shows the photocurrents as functions of the wavelength of incident light along with the absorption relative to the two dyes examined. Figs. 2 and 3 show the photocurrents as functions of the layer thicknesses for three different wavelengths. With the aid of a τ-meter the lifetime was found to be $1.1 \cdot 10^{-4}$ sec, and this quantity served for determining the recombination rate on the surface and the carrier diffusion coefficient. The values are tabulated in Table 1. The diffusion coefficient, the recombination rate, and the carrier mobility of the dyes examined were found to be smaller than those previously observed on inorganic semiconductors. This is partly brought in connection with a reflection effect caused by the smooth surface of the semiconductor. The authors thank Ye. K. Putseyko and I. A. Akimov for having supplied the τ-meter and for valuable advice given. There are 4 figures, 1 table, and 12 references: 6 Soviet, 3 US, 1 British, 1 French, and 1 German.

PRESENTED: April 29, 1960, by A. N. Terenin, Academician

SUBMITTED: April 19, 1960

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

STIL'BANS, L.S., doktor fiz.-mat. nauk; ROZENSHTEYN, L.D., kand. fiz.-mat. nauk; AYRAPETYANTS, A.V., kand. fiz.-mat. nauk; KARGIN, V.A., akademik; KRENTSEL', B.A., doktor khim. nauk; TOPCHIYEV, A.V., akademik [deceased]; DAVYDOV, B.E., kandid.khim. nauk; GEVSEN, L.V., red.; MIYESSEROV, K.G., red.; GOLUB', S.P., tekhn. red.

[Organic semiconductors] Organicheskie poluprovodniki. Moskva, Izd-vo AN SSSR, 1963. 317 p. (MIRA 16:12)

1. Akademiya nauk SSSR. Institut neftekhimicheskogo sinteza. (Semiconductors)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

DAVYDOV, B.E.; DRABKIN, I.A.; KORSHAK, Yu.V.; ROZENSHTEYN, L.D.

Electrophysical properties of polyazines. Izv. AN SSSR. Ser.khim. no.9:1664-1667 S '63. (MIRA 16:9)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut poluprovodnikov AN SSSR.
(Azines) (Polymers--Electric properties)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L. D.

7636.55 : 531.25

2091. PHOTOELASTIC EFFECT IN POLYSTYRENE AND ITS HALOGEN DERIVATIVES. N.M.Bazhenov, M.V.Vol'kenshtein, Yu.Ya.Gotlib and L.D.Rozenshtein. Zh. Tekh. Fiz., Vol. 26, No. 8, 1730-7 (1956). In Russian.

Variation in time of the isothermic elongation and birefringence in films of polystyrene and its six halogen derivatives under load was measured. The maximum value of the photoelastic coefficient was found to be a constant characteristic of the substance. The values of effective anisotropies of the polarizability of polystyrene, poly-n-chlorostyrene and poly-3, 4-dichlorostyrene agree with each other if one assumes almost equal characteristics for the internal rotation in their molecules. On the other hand, it appears that the internal rotation in poly-o-chlorostyrene and poly-2,5-dichlorostyrene is markedly different from that in the other polymer molecules.

F.Lachman

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L. D. Cand Phys-Math Sci -- "Study of certain problems of the electric conductivity and photoconductivity of organic semiconductors." [Len], 1961 (Len Order of Lenin State Univ im A. A. Zhdanov). (KL, 4-61, 184)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

GOL'DSHTEYN, G.M., inzhener (Kuybyshev); SIN'KOV, V.M., kandidat tekhnicheskikh nauk (Kuybyshev) KUDRYASHOV, S.A., inzhener; ROZENSHTEYN, L.Ya., inzhener.

Reducing the cost and industrialized construction of substation equipment. Elek.sta. 26 no.4:43-46 Ap '55. (MLRA 8:6)

1. Tyazhpromenergoproyekt (for Kudryashov) 2. Promenergoproyekt (for Rozenshteyn)
(Electric substations)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

DAVYDOV, B.E.; DEMIDOVA, G.N.; NASIROV, F.M.; PIRTSKHALOVA, R.N.; ROZENSHTEYN, L.D.

Synthesis and electrophysical properties of polydiphenyldiacetylenes. Elektrokhimiia 1 no.7:876-880 Jl '55. (MIRA 18:10)

1. Institut neftekhimicheskogo sinteza AN SSSR i Institut poluprovodnikov AN SSSR.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

DEMIDOVA, G.N.; PIRTSKHALAVA, R.N.; ROZENSHTEYN, L.D.; TERIUGOVA, M.I.; KOTLYAREVSKIY, I.I.

Absorption spectra, electric conductivity, and photoconductivity of polyazo polyarenes. Elektrokhimiia 1 no.9:1145-1149 S '65. (MIRA 18:10)

1. Institut poluprovodnikov AN SSSR i Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya AN SSSR.

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L 14009-66 EWT(1)/EWT(m)/EWP(j)/EWP(t)/EWP(b) IJP(c) JD/RM

ACC NR: AP6003501 SOURCE CODE: UR/0364/66/002/001/0107/0109

AUTHOR: Yeligulashvili, I. A.; Nakashidze, G. A.; Rozenshteyn, L. D.; Khatiashvili, A. A.

ORG: Institute of Semiconductors, Academy of Sciences SSSR, Leningrad (Institut poluprovodnikov Akademii nauk SSSR); Institute of Cybernetics, Academy of Sciences GruzSSR (Institut kibernetiki Akademii nauk GruzSSR)

TITLE: Conductivity nonlinearity effects due to charge carrier injections in organic semiconductors

SOURCE: Elektrokhimiya, v. 2, no. 1, 1966, 107-109

TOPIC TAGS: organic semiconductor, anthracene, volt ampere characteristic, cuprous iodide, aluminum, contact effect

ABSTRACT: Research aimed at studying conduction processes associated with charge-carrier injection into organic semiconductors has been started. It is noted that lately a great deal of attention has been paid to the problem of obtaining nonlinear and nonsymmetrical volt-ampere characteristics for organic semiconductors. To this end an organic semiconductor-electrode contact was constructed by applying 2 CuI electrodes, or a CuI and an aluminum electrode by vacuum

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L 14009-66

ACC NR: AP6003501

sputtering across single crystals of anthracene. It was found that a nonlinear volt-ampere characteristic is obtained, $i \sim V^n$, where $n = 8—10$, regardless of the nature of the second electrode; the characteristic is symmetrical if the electrodes are both of CuI, and nonsymmetrical if one is CuI and the other Al. At the highest voltage used (~500 v), the rectification factor attained 3—5 orders [sic]. It was shown that conductivity is determined by the injection of holes from the CuI electrode into the anthracene crystal, and that injection is increased by illumination of the CuI electrode with monochromatic light of the appropriate wavelength. Orig. art. has: 3 figures. [SM]

SUB CODE: 20/ SUBM DATE: 11May65/ ORIG REF: 001/ OTH REF: 006

ATD PRESS: 4196

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L. Ya.

AID P - 2915

Subject : USSR/Electricity

Card 1/2 Pub. 26 - 12/32

Authors : Motovilov, V. V., Kand. Tech. Sci., Kuybyshev Industrial Institute im. Kuybyshev; B. S. Uspenskiy, Kand. Tech. Sci, Moscow Power Institute im. Molotov; M. Yu. Rozenfayn, Eng., Ukrainian State Institute for Planning of Mining; V. I. Chernyshevich, Eng., Dnepr Power System; S. A. Kudryashov, Eng., Kuybyshev "Elertroproyekt"; L. Ya. Rozenshteyn, Eng., "Promenergoproyekt"; and L. L. Perel'man, Eng., Kiev Construction in the Case Industry

Title : Discussions; On the arrangement of electrical equipment in the main building of small and medium-size electric power plants

Periodical : Elek.sta., 7, 40-44, Jl 1955

Abstract : The layout and arrangement of equipment at power plants are discussed in a series of articles by the authors listed above. The question of an efficient distribution with possible savings in material of electrical equipment

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L. YA.

AID P - 2074

Subject : USSR/Electricity

Card 1/1 Pub. 26 - 16/29

Author : Rozenshteyn, L. Ya., Eng.

Title : Reducing the cost of substations and modernization of their construction. (Discussion of an article by A. B. Krikunchik, this journal, 1954, No.2)

Periodical: Elek. sta., 4, 46, Ap 1955

Abstract : Referring to this article, the author points out the general possibility of installing power transformers with smaller capacities than originally scheduled in order to prevent the annual loss of power. He maintains that in some instances transformer capacity is 35% higher than needed.

Institution: None

Submitted : No date

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L. YA.

AID P - 1223

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 18/34

Author : Rozenshteyn, L. Ya., Eng.

Title : Basic problems of design of regional substations with three voltages (Article by Ye. A. Bugrinov, Elektrichestvo, No. 3, 1954) (Discussion)

Periodical : Elektrichestvo, 12, 73, D 1954

Abstract : The author disagrees with the bus-bar design proposed by Ye. A. Bugrinov. According to the "Rules for establishment of electrical installations" the disconnector installation proposed is faulty and may lead to accidents. Instead, sectional circuit breakers should be used.

Institution : Promenergoproyekt

Submitted : No date

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

LYULYAYEV, V.K., inzhener; MOVSESOV, N.S., inzhener; ORLOVSKIY, A.V., professor; ROZENSHTEYN, L.Ya., inzhener.

Expanding the field of application of an operative alternating current. Elek. sta. 24 no.10:44-49 O '53. (MLRA 6:10)

(Electric currents, Alternating)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, L.Ya., inzhener; SHNITSER, L.M., kandidat tekhnicheskikh nauk.

Selecting transformers for use in industrial electric power plants. Elektrichestvo no.4:83-84 Ap '54. (MLRA 7:5)

1. Promenergoproyekt (for Rozenshteyn). 2. Moskovskiy transformatornyy zavod (for Shnitser). (Electric transformers)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, M.A.

Concerning so-called heart polyps. Vrach.delo no.7:743-745 Jl '59. (MIRA 12:12)

1. Patologoanatomicheskoye otdeleniye (zav. - M.A. Rozenshteyn) Vladimirskoy oblastnoy bol'nitsy (RSFSR).
(HEART--TUMORS)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHTEYN, M.A.

Cases of nonparasitic hepatic cysts. Vrach. delo no.3:295-297 Mr '57 (MLRA 10:5)

1. Patologoanatomicheskoye otdeleniye (zav.-M.A. Rozenshteyn) Vladimirskoy oblastnoy bol'nitsy.
(LIVER--TUMORS)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

KARASEVA, A.A.; NOVAKOVSKAYA, I.V.; ROZENSHTEYN, M.Z.

Analysis of industrial data on the extraction of oil fractions of paraffin base crudes with phenol. Khim. i tekh. topl. i masel 10 no.2:21-24 F '65. (MIRA 18:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

KARASEVA, A.A.; ROZENSHTEYN, M.Z.; YAKOBI, F.S.; NOVAKOVSKAYA, I.V.

Effect of hydrodynamic factors on the operatic efficiency of a packed phenol extraction column. Khim. i tekh. topl. i masel 8 no.7:48-52 Jl '63. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issleodvatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.
(Phenols) (Packed towers)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

VOZNESENSKAYA, Ye.V.; SLUGINA, Z.P.; KUTUKOVA, V.I.; YAKOBI, F.S.; SHAKHSUVAROVA, G.V.; VASIL'YEVA, N.I.; GRYAZNOV, B.V.; ROZENSHTEYN, M.Z.

Production of low pour-point oils from eastern paraffin-base crudes by means of dewaxing with the aid of selective solvents. Trudy VNII NP no.7:69-78 '58. (MIRA 12:10)
(Petroleum--Refining) (Lubrication and lubricants)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

ROZENSHEYN, P.Z.; TARNOPOL'SKAYA, kand.med.nauk, nauchnyy sotrudnik (Khar'kov)

Ways for decreasing temporary work disability in industry. Sov. zdrav. 21 no.5:22-26 '62. (MIRA 15:5)

1. Glavnyy vrach mediko-sanitarnoy chasti zavoda "Serp i Molot" (for Rozensheyn). 2. Ukrainskiy institut gigiyeny truda i professional'nykh zabolevaniy (for Tarnopol'skaya).
(INDUSTRIAL HYGIENE)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3

YAKUBOVICH, A.Ya.; ROZENSHTEYN, S.M.

Synthesis and properties of trifluoroacrylic acid derivatives.
Zhur.ob.khim. 31 no.6:1995-2000 Je '61. (MIRA 14:6)
(Acrylic acid)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001445620015-3"

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D223/D305

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AUTHORS: Yakubovich, A.Ya., and Rozenshteyn, S.M.

TITLE: Synthesis and properties of trifluoroacrylic acid

PERIODICAL: Zhurnal obshchey khimii, v.31, no.6, 1961, 1995-2000

TEXT: The present work describes the synthesis of trifluoroacrylic esters by dehalogination of α-chloro-β-bromo trifluoropropionic acid. The initial α-chloro-β-bromotrifluoropropionic acid was obtained by potassium permanganate oxidation of 2-chloro-1-bromine-1, 1, 2-trifluoropentane - 3 freshly synthetized form perfluorovinyl-chloride, propylene and bromine (Ref 5: P.Tarrant, E.G. Gillman, J.Am. Chem.Soc., 76, 5423, 1954).

$$CF_2BrCFClCH{=}CHCH_3 \xrightarrow[-CH_3COOH]{KMnO_4} CF_2BrCFClCOOH$$

By direct esterification of chlorobromotrifluoropropionic acid or its chloroanhydride the authors obtained methyl, thiomethyl, ethyl

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and phenyl esters of this acid. Difficulties were encountered during dehalogenation with zinc of alkyl-α-chloro-β-bromo-trifluoropropionate. It appears that when this reaction is carried out in absolute esters, not containing alcohol, the halogens removal of 60-70%, yields as a main product alkyl-α-ethyl-β-etoxy-trifluoropropionate together with smaller quantities of alkyl trifluoroacrylate (10% of propionate). The formation of alkyl ethyl etoxy-propionate was due to the reaction of residual ester with intermediately formed alkyl trifluoroacrilate. The perfluoro acrylic system shows an unusual tendency to nucleophillic additions which is shown in the case of reactions with alcohols and phenols which join to perfluoroacrylinitrite under ordinary conditions and in the absence of alkalic catalysts. (Ref 6: I.L. Knunyants, B.L. Dyatkin, Izv. AN SSSR, OKhN, 1958, 648; Amer. pat 2443024; Ch.A. 42, 7786, 1948). This property of alkyltrifluoroacrylates, as shown experimentally, rules out dehalogenation with zinc, as for instance methylchloro-bromotrifluoro-propionate in methanol yields trifluoroacrylate

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which reacts with methanol and the product obtained in α-hydro-β-methoxy-trifluoropropionate. The bonding of elements of alcohol (alcoxyl and hydrogen) into the structure and forming alcoxytrifluoropropionate is governed by the nucleophyllic nature of this reaction, proceeding to α-hydropropionate.

$$CF_2BrCFClCOOR + R'OH + Zn \xrightarrow[-ZnBr_2-ZnCl_2]{} [CF_2{=}CFCOOR] \longrightarrow$$
$$\longrightarrow R'OCF_2CFHCOOR$$

Since alkyltrifluoroacrylate does not react with simple esters even on boiling then it is obvious that formation of α-ethyl-β-etoxypropionate during the dehalogenation reaction is due to the formation of zinc chloride and bromide. These certainly form complexes with esters, and C-O bond of these complexes is more polarized than in free ester which does increase its nucleophillity. High activity of fluorinated acrylates towards nucleophyllic add-

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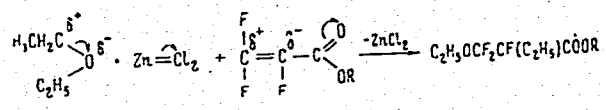
itions, the polarization of C-O bond of the ester complex are further confirmed by the decrease of activation energy of ester addition, a reaction which proceeds well at 30-35°C. The nucleophyllic nature of the reaction by which etoxyl and ethyl radicals are added, is also responsible for formation of β-etoxytrifluoropropiohate.



This new reaction of additions of simple esters to fluorinated ethylene compounds in the presence of zinc halides deserves further study. The correctness of the above stated mechanism of reaction and the role of complex formation of zinc halides and esters is proved by experimental work. The moistening of ester used in the dehalogenation reaction of chlorobromo-trifluoropropionate decreases

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the complex formations due to higher water solution tendencies of zinc halides and hence increases the yield of alkyltrifluoroacrylates. In this way the formation of trifluoroacrylate from methylchloro-bromotrifluoro-propionate becomes the main reaction (yield 40%) and ethylatoxy-triflouro-propionate - a side reaction.

$$CF_2BrCFClC\begin{matrix}\nearrow O\\ \searrow OR\end{matrix} + Zn \xrightarrow[H_2O]{(C_2H_5)_2O} CF_2{=}CFCOOR + ZnX_2 \cdot H_2O$$

The ability of trifluoroacrylate to polymerize with other vinyl monomers is given. In conclusion the authors state: 1) By the zinc dehalogenation of α-chloro-β-bromotrifluoropropionic esters methyl-, ethyl-, phenyl-, and methylthiotrifluoroacrylates were prepared and investigated; 2) It was established that action of zinc on alkylchlorobromotrifluoropropionate in the ester medium in addition to the formation of trifluoroacrylate, produces double bonding of ester with the final formation of alkyl-α-ethyl-β-ethoxytrifluoropropionate; 3) During dehalogenation of methylchlo-

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robromotrifluoropropionate in methanol. β-methoxy-α-hydrotrifluoropropionate is formed as a result of reaction between alcohol and intermediately formed methyltrifluoroacrylate; 4) α-chloro-β-bromotrifluoropropionic acid and series of its product were synthetized and investigated. There are 6 references, 2 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: A.L. Henne, Ch. J. Fox, J.Am. Chem.Soc. 76, 479, 1954; J.D. Lazerte, D.A. Rausch, R.J. Kashar, J.D. Park, W.H. Pearlson, J.R. Lacher, J.Am.Chem, Soc., 78, 5639, 1956; P. Tarrant, E.G. Gillman, J.Am.Chem.Soc. 76, 5423, 1954.

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YAKUBOVICH, A.Ya.; STEFANOVSKAYA, N.N.; MIKHAYLOVSKIY, L.P.; FAYERMAN, S.L.; SOLOVOVA, O.P.; ROZENSHTEYN, S.M.; GINSBURG, V.A.

Structure and polymerization of compounds containing a trifluorovinyl group. Zhur. VKhO 6 no.6:712-713 '61. (MIRA 14:12)
(Vinyl compound polymers)

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AUTHORS: Yakubovich, A. Ya., Razumovskiy, V. V. Vostrukhina, Z. N., Rozenshteyn, S. M.

SOV/79-28-7-45/64

TITLE: Syntheses of Vinyl Monomers (Sintezy vinilovykh monomerov) III. On the Syntheses of the Vinylesters From Acet- and Chloromercuroacetaldehydes, and on the Mechanism of These Reactions (III. O sintezakh slozhnykh vinilovykh efirov iz atset-i khlormerkuratsetal'degidov i mekhanizme etikh reaktsiy)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 7, pp 1930 - 1936 (USSR)

ABSTRACT: The method of the reaction of acetaldehyde with the chlorine anhydride of the corresponding acid in the medium of a tertiary base described by A.M.Sladkov and G.S.Petrov (Ref 1) could not be proved by the authors in any case. In using pyridine, for instance, neither the vinylbenzoate, vinylacetate nor the vinyl esters of butyric-, caproic- or chloroacetic acids were obtained although the conditions mentioned in carrying out the reaction were strictly followed. Besides, the crystalline depositions occurring in this reaction are not mentioned. The vinyl

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Syntheses of Vinyl Monomers. III. On the Syntheses of the Vinylesters From Acet- and Chloromercuroacetaldehydes, and on the Mechanism of These Reactions SOV/79-28-7-45/64

esters of the phosphoric acids could be obtained by the reaction of the acetaldehyde with their chlorine anhydrides in the presence of triethylamine (Ref 3), the yield of vinylbenzoate amounting to 15% (Ref 3). In view of these facts another method of synthesis was tried (Ref 4) according to which the vinyl esters of a series of acids could be synthesized in good yields. Concluding the following results may be stated: In the synthesis of the vinyl esters of the carboxylic acids from acetaldehyde, acylchloride and pyridine only the chlorides of α-acyloxyalkylpyridinium could be obtained. In using triethylamine (instead of pyridine) with benzoylchloride a vinylbenzoate (yield 15%) was obtained. By the direct coupling of the halogen anhydrides of the acids to the aldehydes the following compounds were synthesized: α-chlorethylacetate, α-chlorethylbenzoate, chloromethylmethacrylate, bromomethylmethacrylate, and α-chlorethylmethacrylate. This reaction is of general preparative character. By the reaction of monochloromercury acetaldehyde with the halogen anhydrides of the acids the vinyltrifluoracetate and the

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Syntheses of Vinyl Monomers. III. On the Syntheses of the Vinylesters From Acet- and Chloromercuroacetaldehydes, and on the Mechanism of These Reactions SOV/79-28-7-45/64

vinyl-p-cyanobenzoate were synthesized. There are 20 references, 8 of which are Soviet.

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1. Vinyl esters--Synthesis 2. Acetaldehyde--Chemical reactions
3. Chemical reactions--Analysis

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AUTHORS: Yakubovich, A. Ya., Bogoslovskiy, N. A., Pravova, Ye. P., Rozenshteyn, S. M. SOV/79-28-8-62/66

TITLE: Syntheses of the Vinyl Monomers (Sintezy vinilovykh monomerov) IV. Fluoro-Substituted Acrylates (IV. Ftorzameshchennyye akrilaty)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp. 2288 - 2291 (USSR)

ABSTRACT: The number of the fluoro-substituted acrylates known is small (Ref 1). The authors synthesized an entire series of fluorinated acrylates. Starting from β-fluoroethyl alcohol and 1,1,1-trifluoroisopropyl alcohol and the chloroanhydride of methacrylic acid they obtained by ordinary synthetic means the trifluoroisopropyl and β-fluoroethyl methacrylates (these are only mentioned in the patent, but are described in detail in the experimental section). The attempt to synthesize fluoromethacrylate by replacing the halogen atom in chloro- or bromo-methacrylate with fluoride from potassium fluoride was unsuccessful. Attempts to use the synthesis described in reference 5 were also unsuccessful. Of those acrylates which have fluoride in the acid part of the molecule the authors synthesized the methyl-α-fluoromethylacrylate

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Syntheses of the Vinyl Monomers. IV. Fluoro-Substituted Acrylates SOV/79-28-8-62/66

and the α-difluoromethylacrylate and their derivatives. The synthesis of these compounds was carried out according to the procedure already mentioned. All intermediate products (cyanhydrins, α-oxypropionic acid and its esters) which had fluoromethyl and difluoromethyl groups were separated and classified. The starting materials, fluoroacetone and difluoroacetone, were obtained by reacting chloroacetone and dichloroacetone with potassium fluoride in diethylene glycol. There are 5 references, 2 of which are Soviet.

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AUTHORS: Yakubovich, A., Razumovskiy, V., Rozenshteyn, S.M.

SOV/79-28-8-63/66

TITLE: Syntheses of the Vinyl Monomers (Sintezy vinilovykh monomerov) V. Syntheses of the Cyano-Substituted Acrylates (V. Sintezy tsianzameshchennykh akrilatov)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp. 2292 - 2295 (USSR)

ABSTRACT: Among the great number of esters of acrylic acid and methacrylic acid described in the literature the esters of the cyano-substituted alcohols have been little investigated. The syntheses of the smaller monomeric esters (Refs 1-3) and their properties have been insufficiently treated. The authors investigated these esters at great length and synthesized according to known methods the α-cyanoethyl, α-cyanobenzyl and the p-cyanophenyl esters of methacrylic acid hitherto not described. Also synthesized as side products to these esters were the previously unknown cyano-substituted metylamide of methacrylic acid, $CH_2=C(CH_3)CONHCH_2CN$, by reacting methacrylic chloride with

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the free aminoacetonitrile in acetone; and the derivative of α-cyanoacrylic acid, vinylidene cyanide and the methyl ester of this acid. The methods suggested in the literature were modified somewhat. The literature data on α-cyanoacrylic acid are very scanty and are given in only two patents (Ref 7). Methyl-α-cyanoacrylate was synthesized with the help of two methods described in the patents. In one case methylcyanoacetate and chloromethylacrylate were used as starting materials, while in the other case methylcyanoacetate and formaldehyde were used (see both reaction diagrams). Nevertheless, the monomeric methyl-α-cyanoacrylate indicated in the patent was not obtained, but instead the reaction gave a somewhat solid, partially polymerized product. In order to obtain the monomeric ester it was necessary to warm this product with phosphorous pentoxide in order to depolymerize it. The second method is more practical and also gives better yields of methyl-α-cyanoacrylate. There are 11 references, 3 of which are Soviet.

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Syntheses of the Vinyl Monomers. V. Syntheses of the Cyano-Substituted Acrylates SOV/79-28-8-63/66

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YAKUBOVICH, A.Ya.; BOGOSLOVSKIY, N.A.; PRAVOVA, Ye.P.; ROZENSHTEYN, S.M.

Synthesis of vinyl monomers. Part 4: Fluo substituted acrylates.
Zhur. ob. khim. 28 no. 8:2288-2291 Ag '58. (MIRA 11:10)
(Acrylic acid)
(Vinyl compounds)

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