S/236/63/000/001/006/015
D403/D307

AUTHORS: Kryauchyunas, I. I. and Zhemis, K. I.

TITLE: Dependence of certain properties of polystyrene, polymethyl methacrylate and of their copolymer on the molecular weight

SOURCE: Akademiya nauk Litovskoy SSR. Trudy. Seriya B. no. 1, 1963, 83-92

TEXT: The present work was aimed at determining the effects of polydispersion or mol. wt. on the properties of (a) block polystyrene (type D, grade I), (b) block polymethyl methacrylate, and (c) their 50:50 copolymer, by an ultrasound method. Shear modulus (G), Poisson's coefficient (μ), Young's modulus (E) and the overall elasticity modulus (K) were determined for fractions of different molecular weights (calculated from the viscosities) using a frequency of longitudinal and transverse waves (c_l and c_t) Tabulated data show that G, μ, E and K are a function of the mole-

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cular weight. Measurements of c_l and c_t may, therefore, be used to determine the main physical properties of polymers and to assess their usefulness. There are 4 figures and 4 tables.

ASSOCIATION: Institut khimii i khimicheskoy tekhnologii Akademii nauk Litovskoy SSR (Institute of Chemistry and Chemical Technology of the AS Lithuanian SSR)

SUBMITTED: July 3, 1962

Card 2/2

KRYAZH, I.Z.; KOLOBOV, G.M.

[Raising poultry for meat on collective farms] Miasnoe ptitsevodstvo v kolkhozakh. Moskva, Ministerstvo sel'skogo khoziaistva SSSR, 1957. 35 p. (MIRA 11:3)
(Poultry)

KRYAZH, Ivan Zakharovich; BELYUMOV, O.M., red.; TROFIMOV, A.V., tekhn.red.

[Poultry raising is an improtent means of increasing meat production; practices of collective farms on Staromlinovka District in raising poultry for meat] Ptitsevodstvo - vazhnyi rezerv uvelicheniia proizvodstva miasa; opyt kolkhozov Staromlinovskogo raiona po razvitiiu miasnogo ptitsevodstva. Moskva, Izd-vo "Znanie," 1958. 24 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, no.6) (MIRA 11:5)

1. Sekretar' Staromlinovskogo raykoma Kommunisticheskoy partii Ukrainy (for Kryazh)
(Staromlinovka District--Poultry)

KRYAZH, I.Z., geroy Sotsialisticheskogo Truda.

Our plans for developing poultry farming in 1958. Ptitsevodstvo 8 no.5:11 My '58. (MIRA 11:5)

1. Sekretar' Staromlinovskogo rayonnogo komiteta Kommunisticheskoy Partii Ukrainy.
(Staromlinovka District--Poultry)

KRYAZH, I., geroy Sotsialisticheskogo Truda.

Raising poultry all year around. Nauka i perod. op. v sel'khoz 8 no.12:25-27 D '58. (MIRA 12:1)

1.Sekretar' Staroslinovskogo raykoma Kommunistitcheskoy Partii Ukrayny.

(Poultry)

KRYAZH, I.E., geroy Sotsialisticheskogo Truda.

New achievements of poultrymen in Staromlinovka District.
Ptitsevodstvo 9 no.2:8-12 F '59. (MIRA 12:3)

1.Sekretar' Staromlinovskogo raykoma Kommunisticheskoy Partii Ukrainy.
(Staromlinovka District--Poultry)

KRYAZH, I., Geroy Sotsialisticheskogo Truda

Houses for the year-round maintenance of poultry. Sil'.bud. 9 no.10:4-5 O '59. (MIRA 13:3)

1. Sekretar' byvshego Staromlinovskogo rayonnogo komiteta kommunisticheskoy partii Ukrainy Stalinskoy oblasti.
(Staromlinovka District--Poultry houses and equipment)

VOLOSYUK, V.M.; KRYAZH, I.Z.; MIRIANASHVILI, V.V.; MOROZOV, A.F.; KANDIYEVA, Ye.V., red.; SOKOLOVA, N.N., tekhn. red.

[There will be millions of chicks for meat] Budut milliony miasnykh tsypliat. Literaturnaia zapis' N.I.Koneva. Moskva, Sel'khozizdat, 1962. 53 p. (MIRA 16:5)
(Poultry)

KRYAZH, V.N.

In the Tula Plant. Put' i put. khoz. 8 no.11:25-26 '64
(MIRA 18:2)

1. Direktor Tul'skogo zavoda zheleznodorozhnogo mashinostroyeniya.

KRYAZHANSKIY, A., kinoreshisser

Film about over-all mechanization in road construction. Avt. dor. 22 no.11:26-27 N '59. (MIRA 13:2)
(Road construction)

BRISKINA, A.I., insh.; KRYAZHEV, B.G., insh.

Work safety at gas works. Bezop. truda v prom. 2 no.12:15-17 D '58.
(MIRA 11:12)
(Gas manufacture and works--Safety measures)

BRISKINA, A.I.; KHYAZHEV, B.G.

Safety measures in gas producer stations. Gaz.prom. 5
no.3:14-18 Mr '60. (MIRA 13:6)
(Gas producers--Safety measures)

Dissertation: "Comparative Analysis of Braking Devices Used in Automatic Hosiery Machines." Cand Tech Sci, Moscow Textile Inst, 20 May 54. Vechernyaya Moskva, Moscow, 11 May 54.

SO: SUM 284, 26 Nov 1954

GRIGOR'YEV, V.S.; KNYAZHEV, F.I.

Propagation of low frequency sound in shallow water. Akust.zhur. 6 no.1:34-42 '60. (MIRA 14:5)

1. Akusticheskiy institut AN SSSR, Moskva.
(Sound--transmission)

KRYAZHEV, F.I.

Sound field of the first normal mode in a layer of water. Akust. zhur. 6 no.1:65-76 '60. (MIRA 14:5)

1. Akusticheskiy institut AN SSSR, Moskva.
(Underwater acoustics)

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AUTHORS: Kryazhev, F. I., Petrov, N. A.

TITLE: Normal Waves in a Three-layered Medium

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 2, pp. 229-236

TEXT: In the article under review, the authors discuss experimental data on the propagation of normal waves in water on a composite ground. The composite ground consists of a surface layer and a homogeneous basement which is regarded as a semispace. The experiments were carried out in 1956 in a shallow area of the Caspian Sea by means of sound frequencies of 8 - 1000 cps. The water was 7.5 m deep, and the velocity of sound in water was found to be 1480 m/sec. Amplitude- and phase diagrams were plotted with apparatus used already earlier for studies of two-layered media (Refs. 5 and 6). Formula (1) is derived for the description of the field of normal waves, and (6) is given for the phase velocity. At large distances from the emitter it is possible to use the asymptotic representation of the Hankel function appearing in (1), and one obtains formula (7) instead of (1). Before the experiments were carried out, the authors

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Normal Waves in a Three-layered Medium

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studied the acoustical properties of the ground. The surface layer, which consisted of fine shell rock with sand inclusions, had a thickness of 5.5 m. The underlying layer consisted of water-bearing sand with a depth of 50 m. Measurements of the reflection coefficient of the ground carried out by N. A. Grubnik (Ref. 7) are described. It amounts to 0.845 for the interface between water and ground. Experimental results are illustrated in eight diagrams (Figs. 2-9) which indicate that at critical values of kh (k - wave number of sound waves in water, h - depth of the water layer) the vertical distribution of the sound pressure amplitude is equal at all distances from the emitter. The sound pressure amplitude on the ground reaches a maximum for kh-values of 2.55 and 2.87. The vertical distribution of the pressure amplitude for these kh-values practically follows the theoretical curve of the following values: $n_1 = 0.845$, $n_2 = 0.79$, $d/h = 0.734$, $m_i = m_2 = 2$ (n_i are the reflection coefficients, h is the height of water, d the thickness of the medium layer, and $m_i = \varrho_i/\varrho$, where ϱ denotes the water density and ϱ_i the densities of the two ground layers). The phase of the normal waves remains practically unchanged at all depths. Thus, one obtains good

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Normal Waves in a Three-layered Medium

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agreement between the theoretically calculated characteristic and the experimental results. The author thanks V. S. Grigor'yev, M. A. Isakovich, and Yu. L. Gazaryan for their valuable advice, as well as V. Yu. Zavadskiy, S. G. Strakhov, and V. D. Belyayev for having assisted in experiments. There are 9 figures and 9 references: 8 Soviet and 1 American.

ASSOCIATION: Akusticheskiy institut AN SSSR Moskva (Institute of Acoustics of the AS USSR, Moscow)

SUBMITTED: September 30, 1959

Card 3/3

KRYAZHEV, G.S.; OL'KHOVSKIY, G.P.; KONOVALOV, B.T.

Regularities in the distribution of mineralization in the Buron ore field. Izv. vys. ucheb. zav.; tsvet. met. 4 no.5: 15-23 '61. (MIRA 14:10)

1. Severokavkazskiy gornometallurgicheskiy institut, kafedra poleznykh iskopayemykh i poiskovo-razvedochnogo dela.
(Buron region--Ore deposits)
(Geology, Structural)

L 30052-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) IJP(c) JD/JW

ACC NR: AP6007779 (N) SOURCE CODE: UR/0136/66/000/002/0069/0071

AUTHOR: Zholobov, V. V.; Kryazhev, K. A.

ORG: none

TITLE: Differences in the wall thickness of tubes produced on horizontal presses

SOURCE: Tsvetnyye metally, no. 2, 1966, 69-71

TOPIC TAGS: copper, copper alloy, wall thickness, metal tube, metal pressing, dimension analysis, metal deformation / M1 copper, MES copper, MNZh5-1 copper alloy, nickel containing alloy

ABSTRACT: The article deals with the dependence of tube wall thickness on such technological factors as length of the billet, ratio between the diameters of container and billet, and degree of deformation. The investigation was performed on a 1,500 ton horizontal hydraulic press with a piercing device; the specimens 100 to 200 mm in length were taken from the tubes thus produced and their wall thickness was measured in four directions through 90° each over the tube perimeter, with the relative nonuniformity of wall thickness P_o being determined from the formula

$$P_o = \frac{t_{max} - t_{min}}{t_{max} + t_{min}}$$

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where t_{max} is the maximum wall thickness, in mm, and t_{min} is the minimum wall thickness, also in mm. Findings: For billets 150, 200, 250 and 300 mm long, P_o increases with increasing length of billet. The tubes were made of M1 and MES copper and of MNZh5-1 Cu-Ni alloys. It was established in particular that, for tubes measuring 40x2.5 mm, produced from billets with diameters of 145, 140, 135 and 130 mm in containers of 155-mm diameter, the nonuniformity of wall thickness increases with increasing ratio of cross sectional area of the container to the cross sectional area of the billet. As for the effect of the degree of deformation ϵ, it was established that P_o markedly increases with increasing ϵ. Orig. art. has: 1 figure, 1 table and 4 formulas.

SUB CODE: 13, 11 / SUBM DATE: none / ORIG REF: 003 /

Card 2/2 vmb

KRYAZHEV, N.A.

Modernizing equipment. Avt.prom. 28 no.12:34 D '62. (MIRA 16:1)

1. Ul'yanovskiy avtozavod.
(Technological innovations)

KRYAZHEV, N. A.

"The Investigation of Wood-Machining Quality During Cylindrical Milling." Cand Tech Sci, Moscow Forestry Engineering Inst, 29 Dec 54. (VM, 21 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

KRYAZHEV, M.A., kandidat tekhnicheskikh nauk.

Wood milling with tapered cutters. Der.prom.5 no.9:3-5 S '56.
(MLRA 9:10)

1.Moskovskiy lesotekhnicheskiy institut.
(Woodworking machinery)

KHAZHEV, N.A., kand. tekhn. nauk

Using the MIS-11 double microscope in measuring the dullness of cutting tools. Nauch. trudy MLTI no.6:51-53 '56. (MIRA 11:12)
(Cutting machines--Testing)

KRYAZHEV, N.A., kand.tekhn.nauk

Calculation of the optimum geometry of slitting cutters, their processing and performance. Der.prom. 10 no.6:11-12 '61. (MIRA 14:7)

1. Moskovskiy lesotekhnicheskiy institut.
(Woodworking machinery)

MALYSHEV, Vladimir Vasil'yevich; KHYAZHEV, N.A., red.; BOYKO, L.I., red.izd-va; AKOPOVA, V.M., tekhn. red.

[Designing one-piece and composite profile woodworking cutters] Proektirovanie derevorezhushchikh tsel'nykh i sostavnykh fasonnykh frez. Moskva, Goslesbumizdat, 1963. 73 p. (MIRA 17:3)

K.YAZHEV, Nikolay Aleksandrovich; BERSHADSKIY, A.L., red.; MAKSAKOVA, A.M., red.izd-va; KAZANSKAYA, L.I., tekhn. red.

[Cylindrical and conical wood cutting] TSilindricheskoe i konicheskoe frezerovanie drevesiny. Moskva, Goslesbumizdat, 1963. 183 p. (MIRA 17:3)

KRYAZHEV, I.V.

Test stand for checking the equipment of mechanized hump yards. Avtom., telem. i sviaz. 9 no.1:27 Ja '65. (MIRA 18:2)

1. Master mekhanizirovannoy gorki stantsii Lyangasovo Gor'kovskoy dorogi.

KRIAZHEV, V.G.

Methods of computing the minimum wage for determining the wage level, 1918-1926. Vop.truda no.1:153-165 '58. (MIRA 12:8)

(Wages)

KHYAZHEV, V.; MANKOVICH, M.

Increasing the role of public dining in the rapid rise of workers' standard of living. Vop.ekon. no.12:117-121 D '58. (MIRA 11:12)

(Restaurants, lunch rooms, etc.)

KRYAZHEV, V.; MARKOVICH, M.

Conference on service industries. Biul.nauch.inform.: trud i zar.plata no.6:51-54 '59. (MIRA 12:9)
(Service industries)

KRYAZHEV, V., nauchnyy sotrudnik

Seasonal fluctuations in work can be overcome. Prom.koop. 13 no.11:10-11 N '59. (MIRA 13:3)

1. Nauchno-issledovatel'skiy institut truda.
(Seasonal variations(Economics))

KRYAZHEV, V.; MARKOVICH, M.

Growth of labor productivity potential in the service industries.
Sots.trud 5 no.2:77-82 F '60. (MIRA 13:6)
(Service industries--Labor productivity)

KRYAZHEV, V.

Take-out restaurants and lightening women's work. Sots.trud 5 no.4: 131-135 Ap '60. (MIRA 13:9)

1. Sotrudnik Nauchno-issledovatel'skogo instituta truda.
(Restaurants, lunchrooms, etc.)

KRYAZHEV, V.

Methods of studying the supply of the population with goods.
Biul. nauch. inform.: trud i zar. plata 4 no.3:31-37 '61.
(MIRA 14:3)

(Retail trade) (Moscow—Grocery trade)

KAPUSTIN, Ye.I., kand.ekon.nauk; LAVROV,V.V.; RYUMIN, S.M.; KONSTANTINOV, Yu.A.; PRAVDIN, D.T., kand.ekon.nauk; KIRILLOVA, N.I.; RIMASHEVSKAYA, N.M.; ANTROPOV, B.F.; RYABKOV, F.S.; POPOV, G.A.; DEMYANOVA, V.A.; SMOLYAR, I.M.; ACHARKAN, V.A., kand. yurid.nauk; BRONER, D.L.; SHEPTUH, Ye.V.; KVYAZHEV, V.G.; ALESHINA, F.Yu., kand. ekon. nauk; KUZNETSOVA, N.P.; MARKOVICH, M.B.; BIBIK, L.F.; BUDARINA, V., red.; GRIGOR'YEVA, I., mladshiy red.; CHEPELEVA, O., tekhn. red.

[Public consumption funds and improving the welfare of the people in the U.S.S.R.]Obshchestvennye fondy i rost blagosostoianiia naroda v SSSR. Moskva, Sotsekgiz, 1962. 222 p. (MIRA 15:6)
(Cost and standard of living)

KHYAZHEV, V.I., inzh.

Regular pattern of change in air consumption and pressure with regularly distributed rarefaction. Nauch.dokl.vys.shkoly; gor.delo. no.4:111-116 '58. (MIRA 12:1)

1. Predstavleno kafedroy gornoy mekhaniki Severo-Kavkazskogo gornometallurgicheskogo instituta.
(Mine ventilation)

KRYAZHEV, V.I.

Laws governing changes in the consumption and pressure of air in air ducts with continuously distributed leakage. Izv. vys. ucheb. zav.; tsvet. met. 2 no.3:13-23 '59. (MIRA 12:9)

1.Severokavkazskiy gornometallurgicheskiy institut, Kafedra gornoy mekhaniki.

(Mine ventilation)

KRYAZHEV, V.I., inzh.

Classification of mine air ducts with continuous escapes and a method for the experimental determination of the aerodynamic qualities of air-splitting brattices. Izv.vys.ucheb.zav.; gor.zhur. no.2: 68-72 '60. (MIRA 14:5)

1. Severokavkazskiy gornometallurgicheskiy institut.
(Mine ventilation)

KRYAZHEV, V.I., inzh.

Seeming stability of the interspace air circulation in certain air insulation barriers. Izv. vys. ucheb. zav.; gor. zhur. no.10:82-91 '60. (MIRA 13:11)

1. Severo-Kavkazskiy gornometallurgicheskiy institut. Rekomendovana kafedroy gornoy mekhaniki Severo-Kavkazskogo gornometallurgicheskogo instituta.

(Mine ventilation)

KRYAZHEV, V.I., inzh.

Kinetic energy lost in air streams at ventilation system exits. Izv. vys. ucheb. zav.; gor. zhur. no.12:141-148 '60.
(MIRA 14:1)

1. Severo-Kavkazskiy gornometallurgicheskiy institut. Rekomendovana kafedroy gornoy mekhaniki Severo-Kavkazskogo gornometallurgicheskogo instituta.

(Mine ventilation)

CHOPIKASHVILI, M.A.; KRYAZHEV, V.I.

Technological conference in the Northern Caucasus Institut of Mining and Metallurgy. Izv. vys. ucheb. zav.; tsvet. met. 3 no.3:160-162 '60. (MIRA 14:3)
(Caucasus, Northern—Mining engineering—Congresses)

KHYAZHEV, V.I., inzh.

Designing mine ventilation units. Bezop.trudа v prom. 4 no.10: 11-12 O '60. (MIRA 13:11)

1. Severo-Kavkazskiy gornometallurgicheskiy institut.
(Mine ventilation)

KRYAZHEV, V.I., inzh.

Comparing the quality of modern mine fans for main ventilation systems. Ugol' Ukr. 5 no.1:22-24 Ja '61. (MIRA 14:1)

1. Severokavkazskiy gornometallurgicheskiy institut.
(Mine ventilation) (Fans, Mechanical)

KRYAZHEV, V.I.

Design of fan units for local ventilation. Izv. vys. ucheb. zav.; tsvet. met. 5 no.6:14-23 '62. (MIRA 16:6)

1. Severokavkazskiy gornometallurgicheskiy institut, kafedra gornoy mekhaniki.
(Mine ventilation)

KRJAZHEV, V.J. All Union In titute of Experimental Medicine, Moscow
Experimental neurosis due to emotional shock
American Review of Soviet Medicine, New York, 1948, 5/3 (132-134)

Experiments were done on animals. An emotional state was brought about by causing a collision between two vitally important unconditioned reflexes: the food reflex and the defence reflex. This was done by passing an electric current through the meat and bread powder. The experiments induced a sudden onset of neuro-humoral and functional disturbances affecting the entire organism. The animals showed a sudden disappearance of conditioned reflexes, dyspnea, and tachycardia, increased sugar content in blood, a marked rise in body temperature, defecation and urination, tremor and rigidity of voluntary movements. The "emotional shock" which was produced brings about a chronic process of inhibition, accompanied by depressed nervous activity, and depressed neuro-humoral regulations. The emotional inhibition is highly stable and incapable of disinhibition, and causes a number of trophic disturbances (eczema, ulcers, epilation, body tremor, etc.). The emotional shock is also accompanied by a number of pathological phenomena like dissociation, negativism, perverse reactions, and cortical block of new conditioned reflex connections. Increased sensitivity of the cerebral cortex to emotional signals were also observed. This occurs independently of the type of nervous system shown by the animal. Emotional shock may be one of the main factors of neurosis and other nervous diseases, including neurodystrophic affections. Hoch - New York

SO: Excerpta Medica, Neurology and Psychiatry, Section VIII, Vol II No 12

KRYAZHEV, V. Ya.

Consecutive inhibition in monkeys in relation to type of the nervous system and training of the conditioned connections. Fiziol. zh. SSSR 37 no. 4:439-445 July-August 1951.(CIML 21:3)

1. Laboratory of the Physiology of Higher Nervous Activity of the former Sukhumi Branch of the All-Union Institute of Experimental Therapy.

KRYAZHEV, Vasiliy Yakovlevich; REMNICHENKO, P.N., redaktor; POPRYADUKHIN, K.A., tekhnicheskiy redaktor.

[Higher nervous activity of animals in social situations] Vysshaia nervnaia deiatel'nost' zhivotnykh v usloviiakh obshcheniia. Moskva, Ges. izd-vo med. lit-ry, 1955. 232 p. (MLRA 9:4)
(Psychology, Physiological)

KRYAZHEV, V.Ya.; TSINDA, N.I.

Disorders of visual analysor activity following bilateral excision of the occipital lobes in dogs. Zhur.vys.nerv.deiat. 5 no.1:110-123 Ja-F '55. (MLRA 8:7)

1. Institut mozga Ministerstva zdravookhraneniya SSSR.
(OCCIPITAL LOBE, effects, of excision,
on cerebral cortical visual area & on conditioned visual reactions)
(CEREBRAL CORTEX, physiology,
eff. of occipital lobe excis. on visual area)
(REFLEX, CONDITIONED,
visual reactions after excis. of occipital lobe in dogs)

KRYAZHEV, V.Ya.

Substitutive function of the second signal system. Fiziol.zhur. 41 no.3:305-313 My-Je '55. (MLRA 8:8)

1. Laboratoriya vozrastnoy fiziologii i fiziologii fizicheskikh upravhneniy Instituta fizicheskogo vospitaniya i shkol'noy gigiyeny. APN RSFSR, Moskva.
(CEREBRAL CORTEX, physiology,
signal systems, displaced funct. of 2nd signal system)
(REFLEX, CONDITIONED,
displaced funct. of second signal system)

KRYAZHEV, V.Ya.

Simultaneous study of specialized and general motor reactions in man by means of a "direflexometer.". Vop.psikhol.2 no.3:122-128 My-Je '56. (MLRA 9:9)

1.Institut fizicheskoge vospitaniya i shkol'noy gigiyeny Akademii pedagogicheskikh nauk RSFSR, Moskva.
(Conditioned response) (Physiological apparatus)

S/247/63/013/001/002/002
D296/D307

AUTHOR: Kryazhev, V.Ya.

TITLE: The influence of asphyxia upon the conditioned reflex activity in animals

PERIODICAL: Zhurnal vysshey nervnoy deyatel'nosti imeni I.P. Pavlova, v. 13, no. 1, 1963, 121-130

TEXT: The damage caused to the mental functions of young children by asphyxia suffered in intrauterine life or during birth is well known. It is also an accepted fact that the brain of an adult is more sensitive to anoxia than that of a child. To study the influence of asphyxia upon the higher nervous activity the author exposed 6 cats to asphyxia in a hermetically sealed chamber. After a period of hypoxia lasting 20-60 minutes respiration ceased completely for 3-5 minutes, after which the animals were revived by artificial respiration. Before the experiment 5 positive and 5 inhibitory conditioned reflexes had been elaborated in these animals. Two of the cats were in the state of oestrus which had led to a com-

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plete disruption of all elaborated conditioned reflexes. It appeared that after the asphyxia all positive reflexes were not only fully preserved, but had become more intense, more precise and more stable. All types of inhibition such as differential inhibition, extinction summation, etc. had become more strictly localized and better defined. The transformation of stimuli, from positive to negative 'meaning' and vice versa, could be achieved more easily than before the experiment. Asphyxia also had a beneficial effect upon the conditioned activity of animals in the state of oestrus. In these cats the predominating sexual drive had completely overridden all existing conditioned reflexes. The profound neurohumoral shock caused by the experiment fully restored the conditioned activity in these cats. There are 5 figures and 4 tables.

ASSOCIATION: Otdel razvitiya mozga Instituta pediatrii AMN SSSR (Department of Brain Development, Institute of Pediatrices, AMS USSR)

SUBMITTED: February 27, 1961

KRYAZHEV, Yu., podpolkovnik; KALIBERDA, N., podpolkovnik

Special treatment in small units. Voen. vest. 42 no.5:48-52 My '63. (MIRA 16:5)

(Chemical warfare)

KRYAZHEV, Yu.G.; ROGOVIN, Z.A.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 17: Synthesis of graft copolymers of cellulose and polymethylvinylpyridine. Vysokom.soed. 3 no.12:1847-1852 D '61. (MIRA 15:3)

1. Moskovskiy tekstil'nyy institut.
(Cellulose) (Pyridine) (Polymerization)

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S/190/62/004/005/025/026
B145/B101

53238

AUTHORS: Kryazhev, Yu. G., Rogovin, Z. A.

TITLE: New method of preparing block copolymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 5, 1962, 783-784

TEXT: A method is described, which can be applied to a large number of monomers polymerizing according to a free-radical mechanism. It is based on the formation of free radicals during the reduction of diazonium salts by Cu^{+} or Fe^{2+}: $O_2NC_6H_4N_2Cl + Fe^{2+} + nA \rightarrow O_2NC_6H_4\text{-}(A)_n^{-} + Fe^{3+} + Cl^{-} + N_2$; $O_2NC_6H_4\text{-}(A)_n^{-} \longrightarrow ClN_2C_6H_4\text{-}(A)_n^{-}$, $ClN_2C_6H_4\text{-}(A)_n^{-} + Fe^{2+} + mB \rightarrow -(B)_m\text{-}C_6H_4\text{-}(A)_n^{-} + Fe^{3+} + Cl^{-} + N_2$. The nitro group can be replaced by any group that can be converted into an NH_2 group. A new type of block copolymer, in which several blocks are joined together at one point, can be synthesized by using an initial compound with several functional groups. The reaction can be conducted in aqueous solutions and emulsions, or in organic solvents

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at low temperatures (0-60°C). The size of the blocks can be varied considerably. The products are free of homopolymers. Block copolymers of acrylonitrile with 2-methyl-5-vinyl pyridine and of acrylic acid with acrylonitrile in different proportions were obtained by this method.

SUBMITTED: December 28, 1961

BR

ACCESSION NR: AT4017409 S/0000/63/000/000/0048/0054

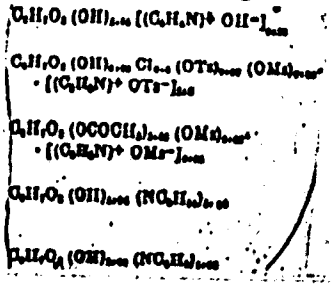
AUTHOR: Kryazhev, Yu. G.; Polyakov, A. I.; Rogovin, Z. A.

TITLE: Synthesis of new derivatives of cellulose and other polysaccharides. XXXIV. Synthesis of cellulose derivatives with nitrogenous heterocyclic rings.

SOURCE: Tsellyuloza i yeye proizvodny*ye, sbornik statey (Cellulose and its derivatives). Moscow, 1963, 48-54

TOPIC TAGS: cellulose, polysaccharide, cellulose derivative, nitrogenous cellulose derivative, heterocyclic cellulose derivative, sandwich polymer, grafted copolymer

ABSTRACT: The authors prepared the following five nitrogenous, heterocyclic cellulose derivatives:



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ACCESSION NR: AT4017409

in which Ms and Ts stand for the mesyl and tosyl esters of cellulose, respectively, by alkylating these esters with pyridine, piperidine and pyrrolidine and by the condensation of dialdehyde cellulose with the quaternary salt of 2-methyl-5-ethylpyridine. Alkylation and condensation reactions were also used to prepare grafted cellulose copolymers of the sandwich type with poly-2-methyl-5-vinyl-pyridine. The reaction conditions are described in detail and data on the chemical composition, degree of polymerization and cation exchange activity of the products are tabulated. Orig. art. has: 2 tables and 3 chemical equations.

ASSOCIATION: Moskovskiy tekstil'nyy institut (Moscow Textile Institute)

SUBMITTED: 24Apr62 DATE ACQ: 06Jan64 ENCL: 00

SUB CODE: OC, MT NO REF SOV: 005 OTHER: 003

Card 1/2

ACCESSION NR: AT4017413 S/0000/63/000/000/0094/0099

AUTHOR: Kryazhev, Yu. G.; Rogovin, Z. A.; Chernaya, V. V.

TITLE: Synthesis of new derivatives of cellulose and other polysaccharides. XL. Preparation of a grafted cellulose-polymethylvinylpyridine copolymer without intermediary formation of a homopolymer

SOURCE: Tsellyuloza i yeye proizvodny*ye, sbornik statey (Cellulose and its derivatives). Moscow, 1963, 93-99

TOPIC TAGS: cellulose, polysaccharide, cellulose derivative, copolymer, grafted copolymer, cellulose copolymer, polymethylvinylpyridine

ABSTRACT: Grafted copolymers were synthesized from 2-methyl-5-vinylpyridine phosphate, chloride, sulfate, acetate, oxalate or citrate, their quaternary salts (prepared by reacting with dimethylsulfate) and cellulose which had been alkylated with 4-β-hydroxyethylsulfonyl-2-aminoanisole and subsequently diazotized in the presence of $FeCl_2$, CuCl, Na_2S, $K_2S_2O_5$, $Na_2S_2O_4$, $Na_2S_2O_3$, Na_2SO_3 and CH_2O as the reducing agents, without intermediary formation of a homopolymer. The copolymers, depending on the particular vinylpyridine salt used, its concentration, the molar ratio between vinylpyridine and the acid used, and the particular reducing agent,

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ACCESSION NR: AT4017413

contained up to 57.2% implanted methylvinylpyridine. The highest yield was obtained with the phosphate using $FeCl_3$ and CuCl as reducing agents. The anion exchange ability of the copolymers reached 2.4 meq/g and fabrics made from them were strong and light-resistant. The length of the side chains in these copolymers is about 1/10 of that in the macromolecules of a grafted copolymer prepared by chain substitution. The preparative procedure is given in detail. Orig. art. has: 3 tables and 1 graph.

ASSOCIATION: Moskovskiy tekstil'ny*y institut (Moscow Textile Institute)

SUBMITTED: 16Jul62 DATE ACQ: 06Jan64 ENCL: 00

SUB CODE: OC, MT NO REF SOV: 003 OTHER: 003

Card 2/2

ACCESSION NR: AT4017416 S/0000/63/000/000/0150/0156

AUTHOR: Marupov, R.; Zhbankov, R. G.; Kryazhev, Yu. G.; Rogovin, Z. A.

TITLE: Infrared spectroscopic study of the structure of grafted copolymers of cellulose with poly-2-methyl-5-vinylpyridine

SOURCE: Tsellyuloza i yeye proizvodnyye, sbornik statey (Cellulose and its derivatives). Moscow, 1963, 150-156

TOPIC TAGS: cellulose, cellulose copolymer, grafted copolymer, spectroscopy, infrared spectrum, poly-2-methyl-5-vinylpyridine

ABSTRACT: The authors compared the infrared spectra of cotton cellulose, 4-β-hydroxyethylsulfony-2-aminoanisole, cellulose alkylated with 4-β-hydroxyethylsulfonyl-2-aminoanisole, a homopolymer of 2-methyl-5-vinylpyridine and a series of grafted copolymers of the latter and cellulose in the 2600-3800 cm^{-1} (LiF), 700-2000 cm^{-1} (NaCl) and 400-700 cm^{-1} (KBr) bands. The copolymers were prepared by chain substitution and by the formulation of a macroradical via the dissociation of diazo groups presubstituted on a cellulose macromolecule. The infrared spectra were found to depend on the method of preparation and corroborated the existence of a chemical bond between the cellulose and the poly-2-methyl-5-vinylpyridine in

Card 1/2

ACCESSION NR: AT4017416

their copolymers. Orig. art. has: 6 graphs and 1 table.

ASSOCIATION: Institut fiziki AN BSSR (Institute of Physics, AN BSSR); Moskovskiy tekstil'ny*y institut (Moscow Textile Institute)

SUBMITTED: 21Jan63 DATE ACQ: 06Jan64 ENCL: 00

SUB CODE: OC, MT NO REF SOV: 006 OTHER: 005

Card 2/2

S/063/63/008/001/001/001
A057/A126

AUTHORS: Kryazhev, Yu. G., Rogovin, Z. A.

TITLE: Synthesis of grafted copolymers of acrylonitrile with 2-methyl-5--vinylpyridine

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva imeni D. I. Mendeleyeva, v. 8, no. 1, 1963, 118 - 119

TEXT: The synthesis of grafted copolymers of polyacrylonitrile was developed without simultaneous formation of homopolymers. The authors reported on the new synthesis of block copolymers of acrylonitrile in an earlier paper (Vysokomol. soyed., v. 4, no. 5, 1962, 783). The present method is based on the fact that the oxidation of aromatic amines and the reduction of aromatic diazo-compounds occurs frequently with formation of free radicals which are able to initiate polymerization of vinyl monomers. Aromatic aminogroups were introduced into the polyacrylonitrile and poly-2-methyl-5-vinylpyridine by copolymerization of the corresponding monomer with 4-vinylsulfonyl-2-aminoanisole (BCA /VSA). Thus two grafted copolymers of acrylonitrile (AH/AN) and 2-methyl-5-vinylpyridine

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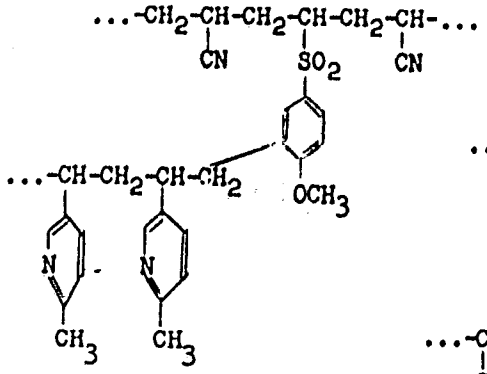
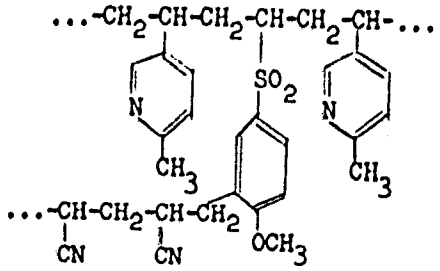
S/063/63/008/001/001/001
A057/A126

Synthesis of grafted copolymers of...

(MBII/MVP) were obtained:



(A)



(B)

Card 2/3

Synthesis of grafted copolymers of...

VSA was synthesized from the sulfate ester of 4-β-hydroxyethylsulfonyl-2--aminoanisole and dissolved in AN and MVP. The block-copolymerization was carried out at 60°C in the presence of azodinitrile isobutyrate as initiator during 10 hrs. The subsequent diazotization of the aromatic aminogroups of the obtained copolymers was carried out with an aqueous solution containing 0.5% $NaNO_3$ and 0.5% HCl at 0 + 5°C during 20 min. Afterwards the polymer was washed and added to the solution of the corresponding monomer (25% solution of MVP in acetic acid or 7% solution of AN in water, respectively) containing the calculated quantity of $FeSO_4 \cdot 7H_2O$. The mixture was held for 3 hrs at 60°C. No homopolymers could be separated from the grafted copolymers obtained. The latter are soluble in dimethylformamide. There are 2 tables.

ASSOCIATION: Moskovskiy tekstilnyy institut (Moscow Institute of Textiles)

SUBMITTED: June 10, 1962

Card 3/3

ACCESSION NR: AP4032568 S/0190/64/006/004/0672/0676

AUTHORS: Kryazhev, Yu. G.; Rogovin, Z. A.

TITLE: Synthesis of block copolymers of 2-methyl-5-vinylpyridine

SOURCE: Vysokomolek. soyedin., v. 6, no. 4, 1964, 672-676

TOPIC TAGS: polymer, polymerization, alkylvinylpyridine, vinyl pyridine, diazonium salt, acrylonitrile, methacrylic acid, styrene, copolymerization, homopolymer formation

ABSTRACT: Block-copolymerization of 2-methyl-5-vinylpyridine (MVP) with acrylonitrile, methacrylic acid, and styrene was conducted by the authors' method (Vysokomolek. soyed., 4, 783, 1962). The first step consisted of polymerizing MVP (initiated by a diazonium salt of p-aminoacetanilide) in order to obtain a Poly-MVP with terminal aromatic aminogroups. The average molecular weight of the Poly-MVP, determined from the content of the aromatic terminal groups was 16,500, as against 8,000 obtained by the viscosimetric technique. In the synthesis of the block-copolymer with acrylonitrile (AN), the Poly-MVP was dissolved in a 7% aqueous solution of AN. The reaction was conducted at 60° (for 1 hour) in the

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ACCESSION NR: AP4032568

presence of 0.5% iron sulfate. Two fractions of the copolymer were obtained, one insoluble in 30% acetic acid and alcohol, and the other one soluble in both. The next copolymer was synthesized by dissolving Poly-4VP in a 30% aqueous solution of methacrylic acid (MA) under identical conditions. A copolymer composed of 28% Poly-4VP and 72% Poly-MA proved soluble in 90% acetic-acid, 0.1 normal NaOH, and HCl. It was insolubie in alcohol and benzol. The copolymerization of Poly-4VP and styrene was conducted for 4 hours under similar conditions in the presence of 3% of the OS-20 emulsifier. A copolymer consisting of 33% Poly-4VP and 67% styrene was isolated. M. Ya. Rolev participated in the experimental work. Orig. art. has: 3 tables.

ASSOCIATION: Moscovskiy tekstil'nyy institut (Moscow Textile Institute)

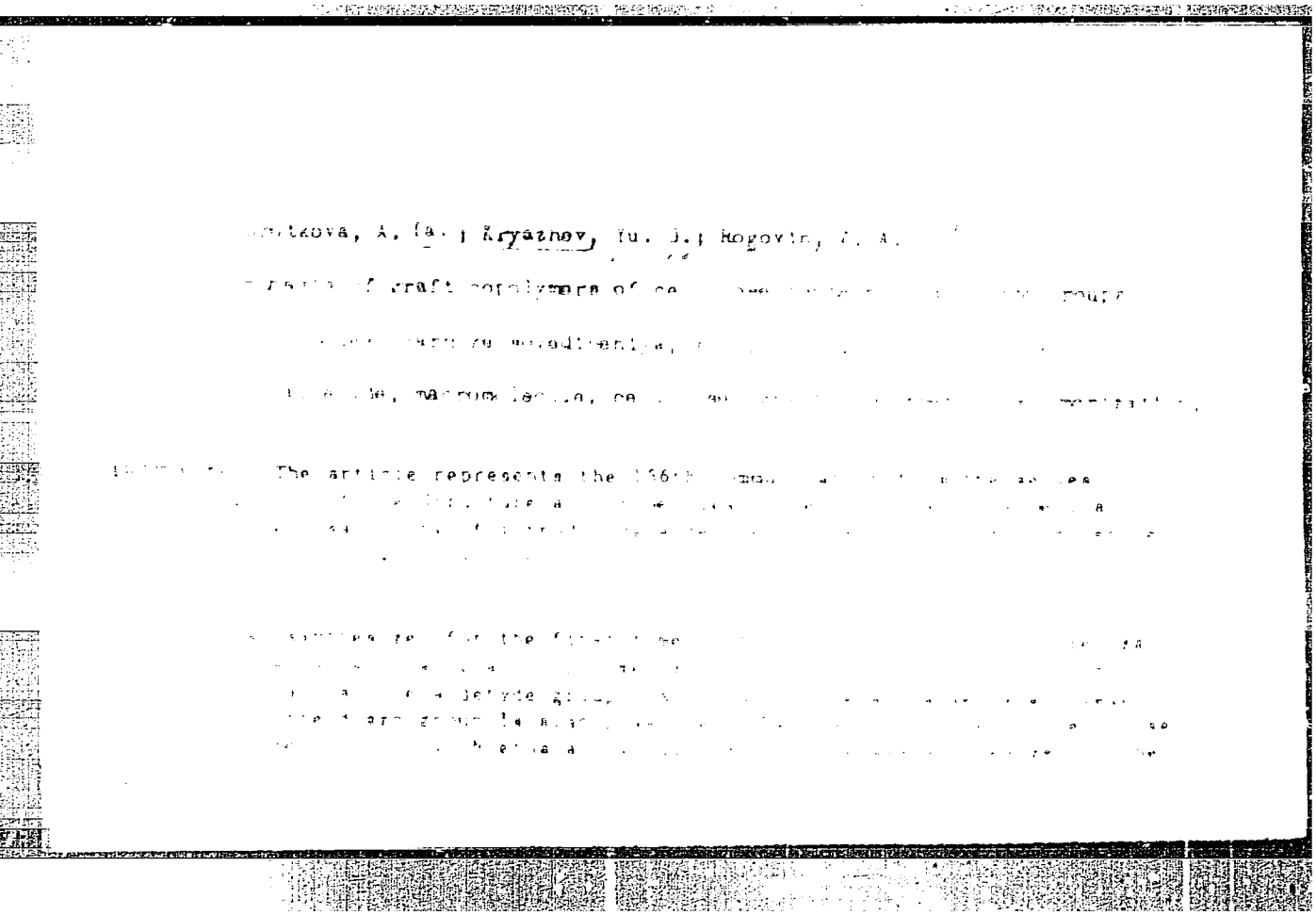
SUBMITTED: 25Apr63 DATE ACQ: 11May64 ENCL: 00

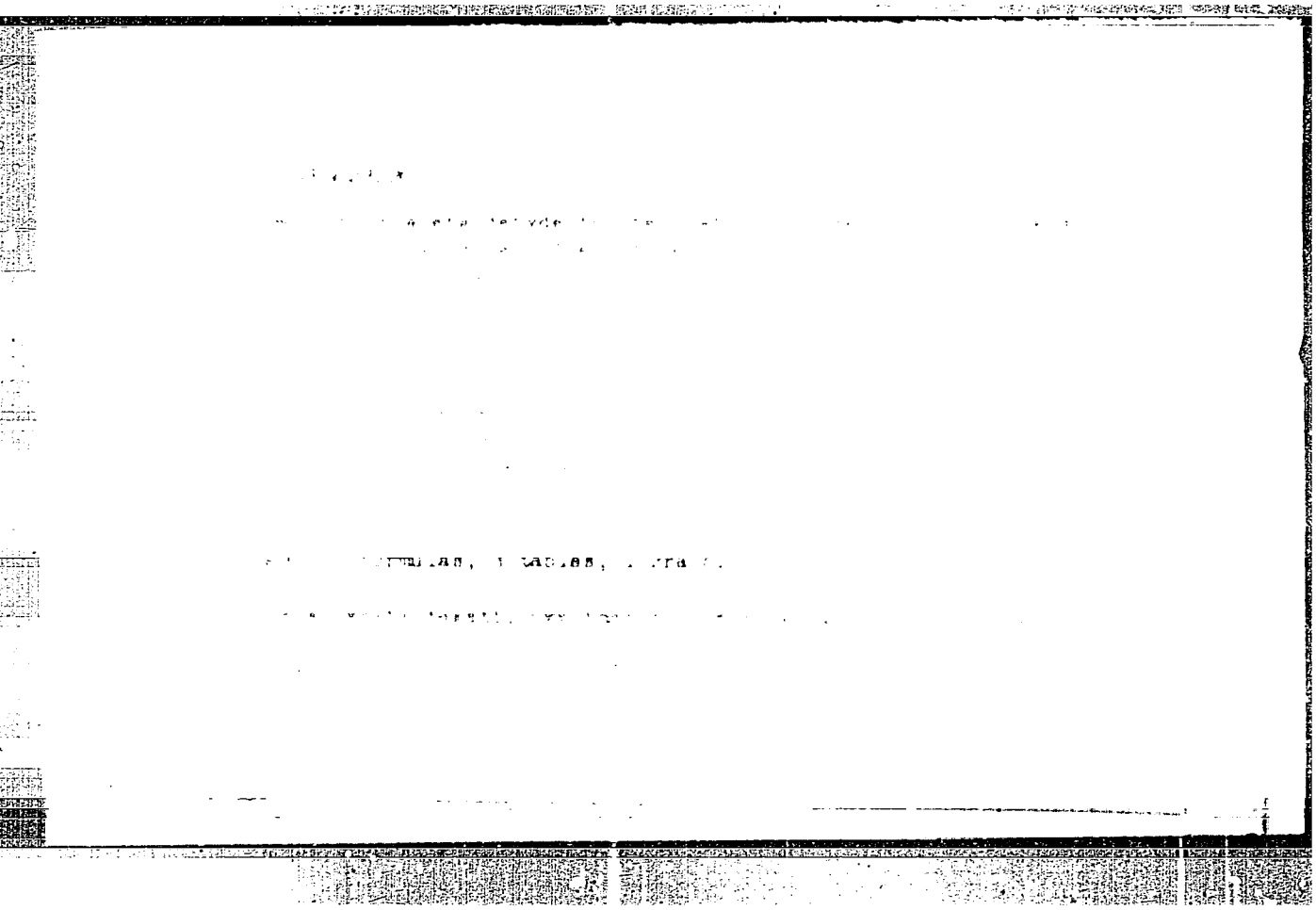
SUB CODE: GC NO REF SOV: 002 OTHER: 001

Card 2/2

MASAIDOVA, G.S.; KRYAZHEV, Yu.G.; ROGOVIN, Z.A.

Synthesis of triple C≡C bond containing graft copolymers of cellulose. Vysokom.soed. 6 no.8:1540 Ag '64. (MIRA 17:10)





GULINA, A.A.; MARUPOV, R.; ZHBANKOV, R.G.; KRYAZHEV, Yu.G.; ROGOVIN, Z.A.

Study of the structure of cellulose-polystyrene copolymer by infrared spectroscopy. Vysokom. soed. 6 no.11:1997-2001 '64 (MIRA 18:2)

1. Moskovskiy tekstil'nyy institut i Institut fiziki AN BSSR.

ACCESSION NR: AP4040526 S/0080/64/037/006/1334/1340

AUTHOR: Kuznetsova, V. A.; Kryazhev, Yu. G.; Rogovin, Z. A.; Toroptseva, T. N.

TITLE: Synthesis of graft copolymers of 2-methyl-5-vinylpyridine, acrylic, or methacrylic acid

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 6, 1964, 1334-1340

TOPIC TAGS: copolymer, graft copolymer, pyridine. 2-methyl-5-vinyl-, acrylic acid, methacrylic acid, poly(vinyl chloride), ftorlon, polyethylene, polycaprolactam, ion exchange material, current conductive material, chemically stable material, free radical polymerization

ABSTRACT: Graft copolymers of chemically stable water-repellant polymers with electrically dissociating monomers have been synthesized. Free radical graft copolymerization of 2-methyl-5-vinylpyridine, acrylic, or methacrylic acid on swollen films, fibers, and fabrics of poly(vinylchloride) ftorlon, polyethylene, or polycaprolactam yielded materials with an ion-exchange capacity of

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ACCESSION NR: AP4040526

1—3.5 mg-equiv/g, which swell in aqueous media and exhibit high mechanical strength and low electrical resistivity in the swollen state. Films of polyethylene-methacrylic acid copolymers retain their strength and electrical conductivity after immersion for six months at 500C in a 40% KOH solution. Orig. art. has: 3 figures and 5 tables.

ASSOCIATION: none

SUBMITTED: 200ct62 DATE ACQ: 06Jul64 ENCL: 00

SUB CODE: OC NO REF SOV: 001 OTHER: 000

Card 2/2

VOLGINA, S.A.; KRYAZHEV, Yu.G.; ROGOVIN, Z.A.

Synthesis of telomers of acrylic acid and their use in the production of graft copolymers of cellulose with polyacrylic acid with predetermined length of a side chain. Vysokom.soed. 7 no.7:1154-1158 Jl '65. (MIRA 18:8)

1. Moskovskiy tekstil'nyy institut.

[redacted]

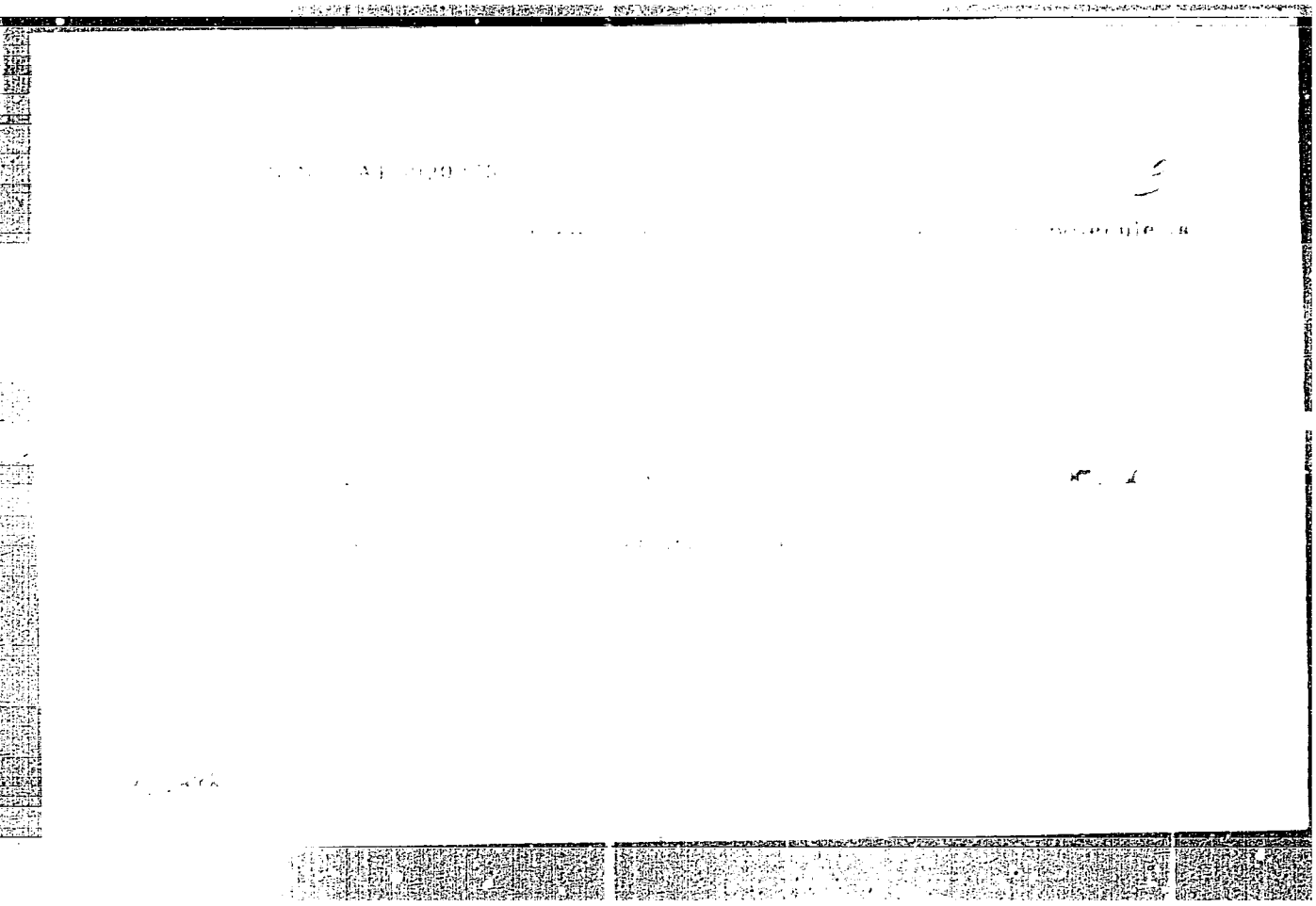
[redacted] 1461-1467

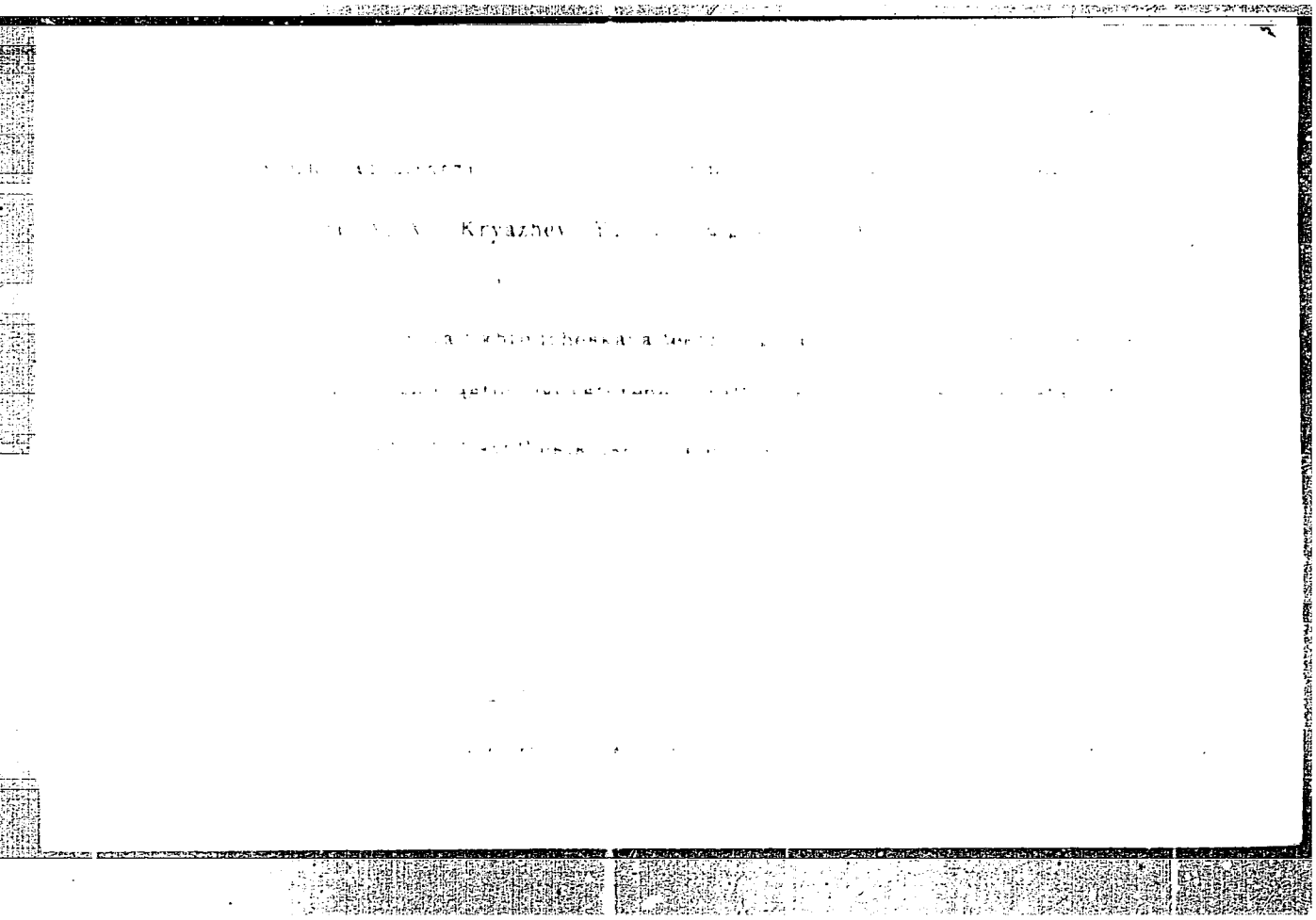
[redacted] AGS block copolymer, copolymerization [redacted] alcohol, polycapra-

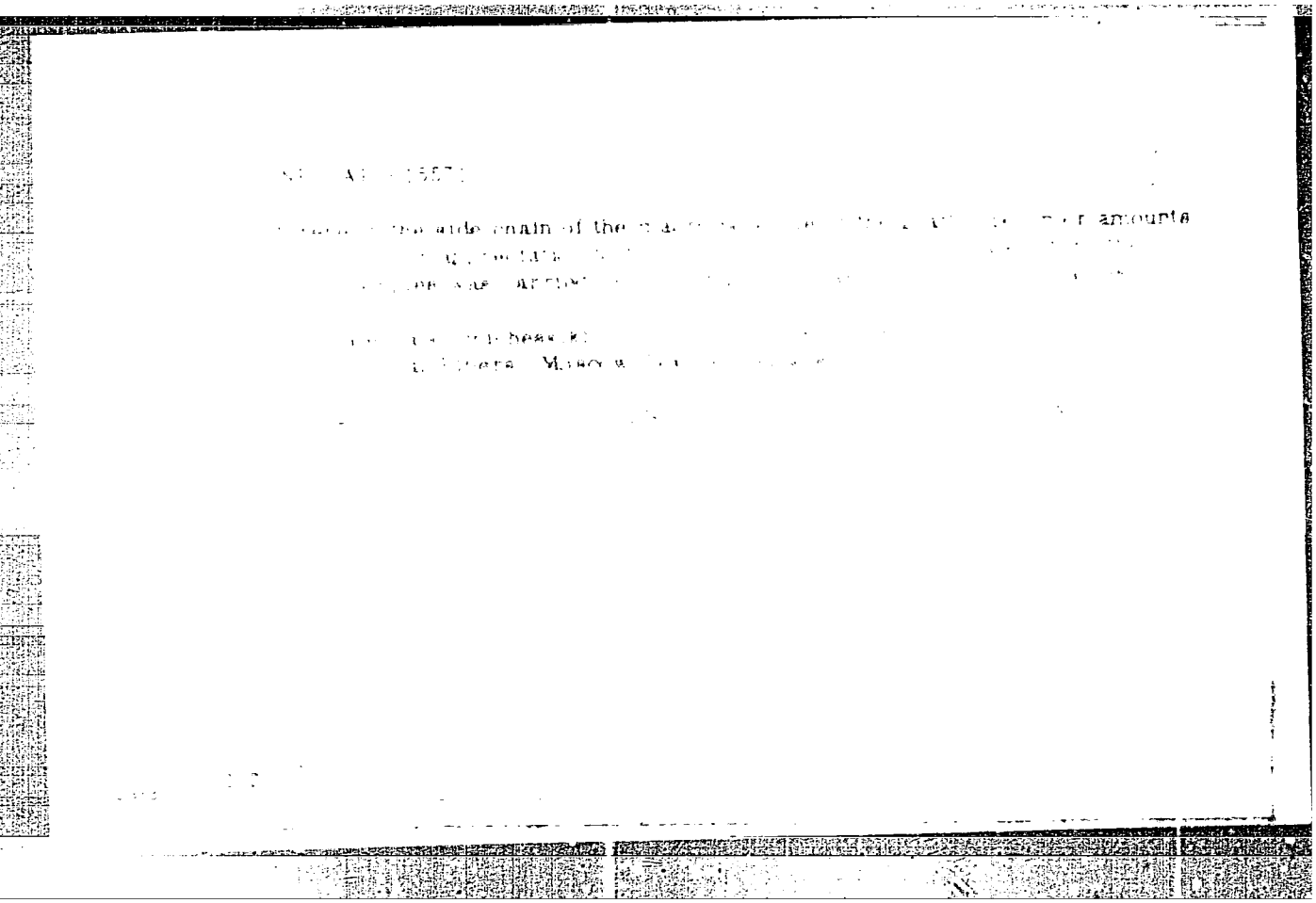
[redacted]

[redacted]

Card 1/2







L 7876-66 EWT(m)/EPF(c)/EWP(j)/T RPL WW/RM

ACC NR: AP5025034 SOURCE CODE: UR/0286/65/000/016/0084/0084

AUTHORS: Rogovin, Z. A.; Kryazhev, Yu. G.

ORG: none

TITLE: Method for obtaining graft copolymers of cellulose with synthetic polymers. Class 39, No. 173946

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 84

TOPIC TAGS: graft copolymer, cellulose, polymerization, copolymerization, polymer

ABSTRACT: This Author Certificate presents a method for obtaining graft copolymers of cellulose with synthetic polymers by radical graft copolymerization. The method involves using decomposition products of hydroperoxide groups as the initiator. To introduce the hydroperoxide into the cellulose, aldehyde groups are added to the latter prior to polymerization.

SUB CODE: 07/ SUBM DATE: 02Apr63

nw

Card 1/1 UDC: 678.7-13.676.1:677.494.7-13.002.2

L 14045-66 EWT(1)/EWA(j)/EWT(m)/EWP(j)/T/EWA(h).2 WW/JK/RM
ACC NR: AR5020058 SOURCE CODE: UR/0081/65/000/012/S130/S130

AUTHOR: Gal'braykh, L.S.; Kryazhev, Yu.G.; Livshits, R.M.

ORG: none

TITLE: Developing new types of graft copolymers

SOURCE: Ref. zh. Khimiya, Abs. 12S849

REF SOURCE: Sb. Khimiya i tekhnol. proizvodn. tsellyulozy. Vladimir, Verkhne-Volzhsk. kh. izd-vo, 1964, 241-249

TOPIC TAGS: copolymer cellulose, graft copolymer

TRANSLATION: A study of cellulose oxidation by salts of quadrivalent cerium for synthesizing graft polymers has shown that a macroradical is formed at the result of the pyran circle rupture. During the synthesis of methylcellulose/graft polymers the reaction takes place if there is ~1 glycol group to 10 glycol links, and it does not occur at $\gamma \sim 200$. The use of quadrivalent cerium and trivalent manganese permits the grafting in an aquous medium. The homopolymerization of the grafter monomer may be avoided by using the latter in a vaporized state. A study of graft copolymerization of cellulose esters containing aromatic aminogroups under the effect of a 5-valent vanadium has shown that for each mole of the aminogroup, 2 moles of vanadium acids are expended and that the copolymer contains nitrogroups. Grafting of monomers with reducing powers may be accomplished, e.g., by the introduction into the cellulose of

Card 1/2

L 14045-66

ACC NR: AR5020058

3

peroxide groups which can be obtained, in particular, by the method of introducing aromtic diazogroups with a subsequent destruction by Fe^{2+} ions. A more practical method is to introduce into the cellulose aldehyde groups (1 to 5) and to oxidize them to peracid by hydrogens peroxide. For synthesizing graft polymers, use may be made of cellulose polymeranalogous conversion reactions or of a cellulose graft component, e.g., graft polymers and polyacrylic hydroxamic acid. The latter is obtained by processing a cellulose graft copolymer with polymethylmetacrylate of either a water or alcohol solution of hydroxilamine. The grafting of certain monomers to cellulose gives new properties to the latter: better resistance to bacteria, better heat resistance, lower combustibility, water resistance, wool-like properties, lesser crumpling, etc. Grafting can also be used for plasticizing cellulose derivatives.
O. Petrzhik.

SUB CODE: 07, 11

BVK
Card 2/2

L 18394-66 EWT(m)/EWP(j)/T WW/RM (A)

ACC NR: AP6003408 SOURCE CODE: UR/0190/66/008/001/0020/0025

AUTHORS: Garbuz, N. I.; Zhbankov, R. G.; Korotkova, A. Ya.; Kryazhev, Yu. G.; Rogovin, Z. A.

ORG: Institute of Physics, AN BSSR (Institut fiziki AN BSSR); Moscow Textile Institute (Moskovskiy tekstil'nyy institut)

TITLE: Study of carbonyl-substituted cellulose graft copolymers by means of IR spectroscopy (189th report in series "Investigation of Structure and Properties of Cellulose and Its Derivatives")

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 20-25

TOPIC TAGS: graft copolymer, cellulose plastic, IR spectroscopy / IK-10 IR spectrophotometer

ABSTRACT: IR spectra of carbonyl-substituted graft copolymers of cellulose and polymethylvinylketone (I), of polymethacrolein (II), and of poly-2-methyl-5-vinyl-N-ethanalpyridinium chloride have been investigated. Preparation of the graft copolymers has been described earlier by A. Ya. Korotkova and Z. A. Rogovin (Vysokomolek. soyed., 7, 1571, 1965); and by A. Ya. Korotkova, Yu. G.

Card 1/2 UDC: 661.728.89+678.01:53

L 18394-66
ACC NR: AP6003408

Kryazhev, and Z. A. Rogovin (Vysokomolek. soyed., 6, 1980, 1964). The spectra were obtained on a double beam spectrophotometer IK-10 in the regions 2600--3800 cm^{-1} (LiF prism), 700--1800 cm^{-1} (NaCl prism), and 400--700 cm^{-1} (KBr prism). Carbonyl absorptions in these regions (typical for the investigated graft copolymers and homopolymers) are described and discussed. Mechanisms of methylvinylketone and methacrolein polymerization during the formation of graft polymers of cellulose with (I) and (II) have been investigated. Orig. art. has: 1 table, 5 figures, and 4 structures.

SUB CODE: 07/ SUBM DATE: 04Feb65/ ORIG REF: 006/ OTH REF: 003

Card 2/2 mc

KRYAZHEVA, L., mladshiy nauchnyy sotrudnik

Methods of forecasting the numbers of grain carabids. Zashch. rast. ot vred. i bol. 10 no.9:44-45 '65. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zashchity rasteniy.

KRYAZHEVA, Lyudmila Pavlovna; REUTSKAYA, O.Ye., red.; BARANOVA, L.G., tekhn. red.

[Ground beetles] Khlebnaia zhuzhelitsa. Leningrad, Sel'khozizdat, 1962. 30 p. (MIRA 15:6)
(Ground beetles) (Grain--Diseases and pests)

KRYAZHEVA, O.(Gatchina, Leningradskoy oblasti).

Street of the metal workers. Prom.koop. no.11:28-29 N '57.
(MIRA 10:12)

(Gatchina--Housing)

ZAY[illegible]IKOV, P.F.; KHYAZHEVA, V.A.

Some investigation results of the perfomance of the windwheel anemometer during changes in air density. Trudy TSAO no.22:60-64 '57. (MIRA 11:4)

(Anemometer)

SOKOLOVA, V.A.; KRYAZHEVA, V.A.; NITISHINSKAYA, A.I.

New method of delustring acetate silk. Khim.volok. no.3:37-39 '62. (MIRA 16:2)

1. Serpukhovskiy zavod.

(Rayon)

ASTAF'YEV, G.V.; KRYAZHEVA, Ye.G.

A holder for the ureter. Nov.khir.arkh. no.3:107-108 My-Je '59. (MIRA 12:10)

1. Nauchno-issledovatel'skiy institut eksperimental'noy khirurgicheskoy apparatury i instrumentov Ministerstva zdravookhraneniya SSSR.

(SURGICAL INSTRUMENTS AND APPARATUS)

DUNAEVSKIY, L.I.; ASTAF'YEV, G.V.; KRYAZHEVA, Ye.G.

Guide for the retrograde introduction of catheters. Urologiia 26 no.2:66-67 '61. (MIRA 14:3)
(CATHETERS)

ROGOVIN, V.Ye.; ASTAF'YEV, O.V.; KRYAZHEVA, Ye.G.

New self-retaining surgical vaginal speculum. Akush.i gin. 37 no.2:103-105 F '61. (MIRA 14:3)

1. Is Nauchno-issledovatel'skogo instituta eksperimental'noy khirurgicheskoy apparatury i instrumentov (dir. M.G. Anan'yev).
(SPECULUM (MEDICINE))

ASTAF'YEV, G.V.; KRYAZHEVA, Ye.G.; ROGOVIN, V.Ye., zasluzhennyy vrach RSFSR [deceased]

New insturments for obstetrical and gynecological practice. Akush. i gin. 38 no.5:107-110 S-O '62. (MIRA 17:11)

1. Iz nauchno-issledovatel'skogo instituta eksperimental'noy khirurgicheskoy apparatury i instrumentov (dir. M.G. Anan'yev).

KRYAZHEVSKIY, A., nagreval'shchik

The best helper. Sov. profsoiuzy 6 no.4:74-75 Ap '58. (MIRA 11:5)

1.Chelyabinskiy kuznechno-pressovyy zavod.
(Chelyabinsk--Sheet-metal work)

8(3) SOV/105-59-10-10/25

AUTHORS: Bershadskiy, V. L., Kalashnikov, V. K., Kryazhevskiy, V. V., Popov, G. A. (Moscow)

TITLE: The Electric Drive of the Screws of the Atomic Ice-breaker "Lenin"

PERIODICAL: Elektrichestvo, 1959, Nr 10, pp 50-56 (USSR)

ABSTRACT: The atomic ice-breaker "Lenin" is equipped with a nuclear fuel-driven power system. Steam turbines serve as prime mover. Power is electrically transmitted from the turbines to the screws. The ice-breaker has a water displacement of 16,000 t, three screws, an over-all length of 134 m, a beam of 27.6 m, a turbine power of 44,000 hp, a top speed of 18 knots; the number of revolutions of the middle screw is 195 rpm at top speed, that of the outside screws is 215 rpm (Ref 1). The screws are driven with direct current according to the motor-generator system. The three electric screw motors are fed by four turbogenerator units of constant number of revolutions. A voltage of 1,200 v, unprecedented in shipbuilding, is used for the screws. The electric motor of the middle screw has two armatures with 9,800 hp each. The electric motors of the outside screws have two armatures with 4.900 hp each.

Card 1/3

Further, they are artificially ventilated and equipped with an air cooler. The generators have two armatures with 1,920 kw and 600 v each, 595 rpm, self-ventilation, and an air cooler. Each turbine is connected with two generators through a gear. The two middle armatures of one generator are connected in parallel. The electric motor of the screw is fed by this latter generator, and the electric motors of the outside screws are fed by the armatures of the second generators of the turbine unit. Hence, each turbine unit feeds simultaneously the three electric motors of the screws (Fig 1). Figure 2 shows and describes the circuit diagram of the main circuit of the middle electric motor. The armatures of a screw motor together with their generators form two independent circuits. The control is described, and figure 4 shows that of the medium electric motor. The rated constants of the main machines are chosen for the most difficult mode of operation, i.e. that in mooring in which the ship is immobile with respect to the water (Curve 3 on Fig 3). The screws are operated by remote control. Due to the fact that the rotary amplifiers serve as exciters, the control devices could be made of mag-slips.

Thus, the design was simplified and the control devices became much more reliable. Figure 5 shows such a control device. There are 6 figures, 1 table, and 2 Soviet references.

SUBMITTED: May 30, 1959

Kryazhevskiy, V.V.

report to be presented at the 1st Intl Congress of the Intl Federation of Automatic Control, 25 Jun-5 Jul 1960, Moscow, USSR.

AGEYKIN, D. I. - "Compensating thermo-magnetic gas analysers"
ANDREYEV, N. I. - "Method of determining the optimum dynamic system according to the criterion of the functional extr, which is a given function of several other functions"
AYZERMAN, M. A., and GANTMAKHER, F. R. - "Some problems of the theory of [illegible] systems of automatic regulation with discontinuous characteris[illegible]"
BARBASHIN, E. A. - "Concerning the organization of the LYAPUNOV function for nonlinear systems"
BASHARIN, A. V. - "Graphic methods of synthesis of nonlinear systems of automatic regulation"
BASHTA, T. M. - "Problems of the application of high liquid pressures for automatic systems"
BEDEL'BAYEV, A. K. - "The theory of stability of regulation systems"
[illegible], Yu. N. - "Multicoordinate nonlinear interpolator for program control of machines"
[illegible], T. K., and TAL', A. A. - "Pneumatic alloy systems"
[illegible], V. L., [illegible], V. I., KRYAZHEVSKIY, V. V., [illegible], L. V., POPOV, G. A. - "Automated electric drive of the propeller installation of the atomic icebreaker 'Lenin'"
[illegible], V.A., and FEDOROV, S. M. - "Application of the equivalent transmission function in the calculation of followup systems by the logarithmic frequency curve method"
[illegible], R. V., [illegible], V. A., and [illegible], I. V. - "Contactless telemechanical systems with temporary separation of channels"
BOLTYANSKIY, V.G., GAMKRELIDZE, R. V., [illegible], E. F., and PONTRYAGIN, L. S. - "The maximum principle in the theory of optimum control processes"
[illegible], M. M. - "Automated electric drives of a metallurgical plant"
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