

L 1898-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5021600

UR/0286/65/000/013/0070/0070
678.673

AUTHOR: Korshak, V. V.; Vinogradova, S. V.; Salarkin, S. N.

TITLE: Preparative method for polyaryl esters. Class 39, No. 172492

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 70

TOPIC TAGS: polymerization, heat resistant polymer, polyaryl ester

ABSTRACT: An Author Certificate has been issued for a preparative method for polyaryl esters based on bisphenols and 4,4'-diphenylphthalide dicarboxylic acid chloride [sic]. [SM]

ASSOCIATION: none

SUBMITTED: 08Jun64

ENCL: 00

SUB CODE: MT, GC

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4088

mlb
Card 1/1

L 5296-66 EWT(m)/EPF(c)/EWF(j)/T RM
ACC NR: AP5025017

SOURCE CODE: UR/0286/65/000/016/0080/0080

AUTHORS: Prutkov, L. M.; Polikanin, N. A.; Kamenskiy, I. V.; Sanin, I. K.;
Kutepov, D. F.; Korshak, V. V.

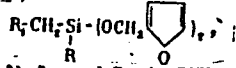
ORG: none

TITLE: A method for obtaining epoxy compositions. Class 39, No. 173926

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 80

TOPIC TAGS: epoxy, nitrogen, hardener, organosilicon, alkyl, aryl, aralkyl

ABSTRACT: This Author Certificate presents a method for obtaining epoxy compositions by applying, as a hardener, an oligomer based on nitrogen-containing organosilicon compounds. To increase the thermal stability of the hardened epoxy compositions, use is made of the oligomers based on aminoalkyldifurfuroloxysilane of the general formula:



where R is alkyl, aryl, or aralkyl, and R₁ is RNH or NH₂.

Card 1/2

UDC: 678.643.002.2:678.028.84

L 5296-66

ACCESSION NR: AP5025017

SUB CODE: MT, CC, CC/ SUB DATE: 17Aug64/ ORIG REF: 000/ OTH REF: 000

OC
Card 2/2

L 1809-66 EMT(m)/EPF(c)/EWP(v)/EWP(j)/T RPL RM/WM

ACCESSION NR: AP5025026

UR/0286/65/000/016/0082/0082

678.673.7-13

677 521

AUTHOR: ^{44,55} Korshak, V. V.; ^{44,55} Vinogradova, S. V.; ^{44,55} Korchevey, M.; ^{44,55} Kul'chitskiy, V. I.

TITLE: Preparative method for copolymers of unsaturated allyl-substituted poly-aryl esters. Class 39, No. 173936 ^{44,55}

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 82 ³¹

TOPIC TAGS: polyaryl ester, heat resistant polymer, cross linking ¹³

ABSTRACT: An Author Certificate has been issued for a preparative method for copolymers of unsaturated allyl-substituted polyaryl esters. The method involves copolymerization of the appropriate polyaryl esters with cross-linking agents at elevated temperature in the presence of free radical initiators. To improve the heat and chemical resistance of the copolymers, the cross-linking agents used are tetrafunctional acrylic monomers, e.g., allyl methacrylate, 2-allylphenol methacrylate, or 4, 4'-isopropylidenediphenol methacrylate. The copolymers so prepared are suitable as binders in glass-reinforced plastics. [SM]

Card 1/2

L 1809-66

ACCESSION NR: AP5025026

ASSOCIATION: none

SUBMITTED: 23Nov64

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: OC, MT

ATD PRESS: 411

Card 2/2

A L 10191-66 EWT(m)/EWP(j)/T/ETC(m) WW/RM

ACC NR: AP5028486 SOURCE CODE: UR/0286/65/000/020/0065/0065

INVENTOR: ^{44,55} Korshak, V. V.; ^{44,55} Krongauz, Ye. S.; ^{44,55} Rusanov, A. L. 36
B

ORG: none

TITLE: Preparative method for polyesters. Class 39, No. 175652 ¹⁵ 48

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 65

TOPIC TAGS: polyester plastic, heat resistant plastic ^{44,55}

ABSTRACT: ¹⁵ An Author Certificate has been issued for a preparative method for heat-resistant polyesters, involving the condensation of aromatic dicarboxylic acid chlorides with hydroxybenzoic acid hydrazides such as the 3- and 4-hydroxybenzoic acid hydrazides. [SM]

SUB CODE: 07,11/ SUBM DATE: 25Jan65/ ATD PRESS: ⁴¹⁵⁹

Card ^{Jc} 1/1 IDC: 678.673*1
2

A I 10190-66 EWT(m)/EWP(j)/T WW/RM

ACC NR: AP5026490 SOURCE CODE: UR/0286/65/000/020/0066/0066

INVENTOR: Korshak, V. V.; Vinogradova, S. V.; Fomina, Z. Ya. ^{44,55} ^{44,55} ^{44,55} 34
B

ORG: none

TITLE: Preparative method for polyaryl esters. ¹⁵ Class 39, No. 175656

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 66

TOPIC TAGS: polyester plastic, ^{44,55} heat resistant plastic, thermosetting material, ester, polyaryl plastic

ABSTRACT: An Author Certificate has been issued for a preparative method for polyaryl esters from dihydric phenols and aromatic dicarboxylic acid chlorides. To impart thermosetting properties to the polyesters, trihydric phenols, such as phloroglucinol, are added to the reaction mixture. [SM]

SUB CODE: 0911/ SUBM DATE: 29May64/ ATD PRESS: 4158

Card ^{gc} 1/2 UDC: 678.673 ₂

L 11596-66 EWT(m)/ETC(F)/EWG(m) DS/RM

ACC NR: AP6000351

SOURCE CODE: UR/0286/65/000/021/0027/0027

AUTHORS: ^{44,55} Korshak, V. V.; ^{44,55} Rogozhin, S. V.; ^{44,55} Davankov, V. A.

ORG: none

TITLE: Method for obtaining optically active ion exchangers. ^{44,55} Class 39, No. 176064 ⁴¹⁶ ^B ¹⁵

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 21, 1965, 47

TOPIC TAGS: ion exchange resin, ion exchange, optic activity, amino acid, resin, copolymer, styrene

ABSTRACT: This Author Certificate presents a method for obtaining optically active ion-exchangers on the basis of halogen-methylated copolymers of styrene and divinylbenzene by aminating them with an aminating agent. To obtain an optically active and chelate-forming ion exchanger, bromomethylated copolymers of styrene and divinylbenzene are aminated by an optically active amino acid or its derivatives.

SUB CODE: 11/ SUBM DATE: 28Sep64

HW
Card 1/1

UDC: 661.183.123.3:678.746.22

L 15339-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM

ACC NR: AP6000977

(A)

SOURCE CODE: UR/0286/65/000/022/0058/0058

AUTHORS: Korshak, V. V.; Frunze, T. M.; Surikova, M. A.

ORG: none

TITLE: A method for obtaining thermostable soluble polymers. Class 39, No. 176398

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 58

TOPIC TAGS: polyester, polymer, polycondensation, aliphatic dicarboxylic acid, amine

ABSTRACT: This Author Certificate presents a method for obtaining thermostable soluble polymers by polycondensation of aromatic and aliphatic esters of dicarboxylic acid with tetramines. To increase the variety of thermostable soluble polymers, 3,3', 4,4'-tetraminodiphylloxide is used as the tetramine.

SUB CODE: 11/ SUBM DATE: 08Jun63

07/

CC

Card 1/1

UDC: 678.744.34-134.52

L 15323-66 EWT(m)/EWP(j)/I/ETC(m)-6 WW/RM

ACC NR: AP6000978

(A)

SOURCE CODE: UR/0286/65/000/022/0058/0058

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Salazkin, S. N.; Bereza, S. V.

ORG: none

TITLE: A method for obtaining homogeneous and mixed polyarylates. Class 39, No. 176401

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 58

TOPIC TAGS: polymer, polycondensation, phenol, polyaryl plastic, plastic

ABSTRACT: This Author Certificate presents a method for obtaining homogeneous and mixed polyarylates, an interphase polycondensation of dihydroxyphenols and chloro-anhydrides of dicarboxylic acids. To increase the variety of thermostable and soluble polyarylates, the imide of phenolphthalein-3,3-bis-(4-oxyphenyl)-phthalimide is used as the dihydroxyphenol.

SUB CODE: 11/07/ SUBM DATE: 27Jun63

UDC: 54-126:547.461.2'053
547.633.6

Card 1/1 SC

L 15337-66 EWT(m)/EWP(j)/T WW/RM

ACC NR: AP6000981

(A)

SOURCE CODE: UR/0286/65/000/022/0059/0059

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Valetskiy, P. M.; Lavrinenko, T. G.

35
B

ORG: none

TITLE: A method for obtaining thermoactive polyarylates.^{b1} Class 39, No. 176404^b

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 59

TOPIC TAGS: polymer, polymerization, polycondensation, epoxy, plastic

44/55

ABSTRACT: This Author Certificate presents a method for obtaining thermoactive polyarylates. To enhance the properties of the polyarylates, unsaturated polyarylates derived from allyl-substituted phenols are epoxidated with organic per-acids.

SUB CODE: 11/ SUBM DATE: 31Jan64

07/

PC

Card 1/1

UDC: 678.673:547.581.2

I 9689-66 ENT(m)/EMP(1)/T RM

ACC NR: AP6000995

SOURCE CODE: UR/0286/65/000/022/0062/0062

INVENTOR: Korshak, V. V.; Sergeyev, V. A.; Shitikov, V. K.

ORG: none

TITLE: Preparative method for thermosetting organometallic polymers. Class 39, No. 1764221⁵

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 62

TOPIC TAGS: thermosetting material, organometallic compound, polymer

ABSTRACT: An Author Certificate has been issued for a preparative method for thermosetting organometallic polymers involving condensation of furfural with zirconium acetylacetonate. The method provides for heating of the reactants over an inorganic alkali catalyst. [EO]

SUB CODE: 07, 11/ SUBM DATE: 19Feb63/ ATD PRESS: 4157

OC
Card 1/1

UDC: 678.029.5:669.296.547.724.1

KORSHAK, V.V.; ROGOZHIN, S.V.; DAVANKOV, V.A.; DAVIDOVICH, Yu.A.;
MAKAROVA, T.A.

Advances in the synthesis of polypeptides. Usp. khim. 34 no.5:
777-849 My '65. (MIRA 18:7)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

L 59476-65 EPF(c)/EPR/EMP(j)/EWT(m)/T Pc-l/Pr-l/Pe-l RM/wn

ACCESSION NR: AP5015831

UR/0030/65/000/006/0072/0077

AUTHOR: Korshak, V. V. (Corresponding member AN SSSR); Vinogradova, S. V. (Doctor of chemical sciences)

TITLE: New developments in the study of polyaryl esters

SOURCE: AN SSSR. Vestnik, no. 6, 1965, 72-77

TOPIC TAGS: heat resistant material, phenol, polymerization absorption, polymer, ester

ABSTRACT: The state-of-the-art of polyaryl esters has been reviewed by V. V. Korshak, a leading figure in Soviet polymer science, and an associate, S. V. Vinogradova.

Polyaryl esters are prepared by polycondensation from aromatic dicarboxylic dichlorides and 1) dihydric phenols at elevated temperatures in the melt or in high-boiling solvent solutions, or 2) sodium salts of dihydric phenols at low temperatures by an interfacial process.

42
37
B

35-

Card 1/5

L 59476-65

ACCESSION NR: AP5015831

Solution polycondensation makes it possible to obtain high-softening polyaryl esters with a high degree of completion but without their decomposition because of too high temperatures. Depending on the starting materials, the polyaryl esters are thermosetting or thermoplastic. The original article discusses briefly the effect of reaction time and temperature, reactant ratio and concentration, and solvent type on solution polycondensation kinetics and polymer properties. The advantages of using concentrated solutions, in particular, the better mechanical properties of polymers so prepared, are noted. Preparative methods for fusible and soluble polyaryl esters are discussed briefly.

Low-temperature interfacial polycondensation results in polymers having a higher molecular weight than those obtainable at high temperatures, but the method is subject to certain difficulties which are discussed in the source.

Polyaryl esters exhibit a host of valuable properties. For example, polyaryl esters from Bisphenol A and terephthalic or isophthalic chloride

Card 2/5

L 59475-65
ACCESSION NR: AP5015831

are highly resistant to many solvents, mineral and organic acids (except H_2SO_4), oxidizing agents, dilute alkalis, ultraviolet and ionizing radiation, and heat (weight loss at $300^\circ C$ for 1 hr, 5%). A copolymer based on Bisphenol A and terephthalic and adipic chlorides softens at about $350^\circ C$. 2

Methods of increasing the heat resistance of polyaryl esters are also considered. For example, films from Bisphenol A or phenolphthalein and isophthalic chloride, when cross-linked with novolak or formaldehyde, show good strength at up to $300^\circ C$. Other methods involve inclusion of reactive (e. g., unsaturated) groups in the polymer backbone to render the material thermosetting.

A valuable feature of polyaryl ester films is their ability to preserve good mechanical properties both at room temperature and at elevated temperatures for long periods of time. For example, nonoriented films from

Card 3/5

L 59476-65

ACCESSION NR: AP5015831

2

resorcinol, Bisphenol A, and terephthalic acid show a tensile strength of 600—800 kg/cm² and an elongation at break of 8—60%. Polyaryl esters are also noted for their good dielectric properties.

Polyaryl esters can be processed into end products by conventional methods although the danger of degradation sometimes arises owing to high softening points.

Korshak and Vinogradova predict widespread acceptance of polyaryl esters in the near future wherever polymers having high heat and light resistance, good dielectric properties, and high strength are desired.

Polyaryl esters are being developed at the Institute of Organoelemental Compounds, Academy of Sciences USSR, and the Scientific Research Institute for Plastics.

Orig. art. has: 2 graphs.

Card 4/5

L 59476-65

ACCESSION NR: AF5015831

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elementoorganic Compounds, Academy of Sciences SSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: 00, 00

NR REF SOV: 000

OTHER: 000

ATD PRESS: 4039-F

Card ¹² 5/5

KORSHAK, V.V.; PAVLOVA, S.A.; TIMOFEYEVA, G.I.; VINGOPADINA, S.V.; PANEFATOV, V.A.

Influence of the steric factor on the viscoelastic properties and polydispersity of polyarylates. Dokl. AN SSSR 160 no.1:119-122
Ja '65. (MIRA 1E:2)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. 2. Chlen-korrespondent AN SSSR (for Korshak).

L 27406-65 EWT(m)/EPP(c)/ZPR/EWP(j)/T Pc-l/Fr-l/Pa-l RPL RM/WW

ACCESSION NR: AP5004595

S/0020/65/160/002/0349/0351

AUTHOR: Korshak, V. V.; Frunze, T. M.; Kurashev, V. V.; Baranov, Ye. L.

31
28
B

TITLE: Synthesis of graft copolymers of styrene with caprolactam

SOURCE: AN SSSR. Doklady, v. 160, no. 2, 1965, 349-351

TOPIC TAGS: graft copolymer, styrene copolymer, caprolactam copolymer, block copolymerization, methacryloylcaprolactam

ABSTRACT: The object of this study was to establish the optimum conditions (amount of the catalytic system and degree of conversion) for copolymers of different compositions in block copolymerization. To determine the amount of the catalytic system necessary and sufficient to prepare a copolymer with ε-caprolactam at a content of 2 to 50% of added styrene (or the number of imide groups in the copolymer of styrene with N-methacryloylcaprolactam (MAC)), the authors prepared copolymers containing from 0.9 to 10% of the imide component. Infrared spectroscopy was used to determine the number of imide groups. Assuming that the optimum amount of the catalytic system present during the polymerization of ε-caprolactam was 0.2 mole % of the latter, the authors found that, as the amount of

Card 1/2

L 27406-65

ACCESSION NR: AP5004595

styrene introduced into the graft copolymer increases, the number of imide groups present in the copolymer of styrene with MAC increases in proportion to $\tan \alpha$, α being the angle of the slope formed by the straight line representing the amount of the catalytic system versus the amount of styrene introduced. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences, SSSR)

SUBMITTED: 25Aug64

ENCL: 00

SUB CODE: GC, OC

NO REF SOV: 005

OTHER: 007

Card 2/2

L 65187-65 EWP(m)/EPF(c)/EWP(j)/T/EWA(c)/ETC(m) WH/RM

ACCESSION NR: AP5018084 UR/0020/65/163/001/0116/0118

AUTHOR: Korshak, V. V. (Corresponding member AN SSSR); Tseytlin, G. H.; Pavlov, A. I.

TITLE: Synthesis of polybenzoxazoles

SOURCE: AN SSSR. Doklady, v. 163, no. 1, 1965, 116-118

TOPIC TAGS: heat resistant polymer, polybenzoxazole, aromatic polybenzoxazole, polymer solubility, internal plasticizer

ABSTRACT: In developing methods for the synthesis of heat resistant polymers, the condensation of diphenyl sebacate, isophthalate or terephthalate with dihydroxydiamines of the type

where R is either -C(CH3)2- (I) or  (II), was completed for

the purpose of obtaining more soluble polybenzoxazoles. It was assumed that the bridging radicals contribute to the backbone, and the side groups serve as internal plasticizers. The formation of polymers

L 65187-65

ACCESSION NR: AP5018084 3

passed the stage of polyhydroxyamides (at 160-200°C), followed by the condensation to polyoxazoles at temperatures above 220°C. Polymers with the bridging radical I had good solubility in most organic solvents, while those with radical II (even those based on sebacate), dissolved only in concentrated sulfuric acid. Heating this polymer above 275°C resulted in the loss of even this solubility. This was explained as further cross-linking and the formation of a three-dimensional structure by means of the phthaloyl rings, while the hydroxyamido structure remained intact. The results of thermogravimetric analysis indicated high thermal stability of the polymers obtained. The fully aromatic polybenzoxazoles began to decompose at 500°C. Orig. art. has: 2 formulas, 1 table, 1 figure. [BN]

ASSOCIATION: Moscow Institute of Chemical Technology im. D. I. Mendeleev

SUBMITTED: 25 Jan 65

ENCL: 00

SUB CODE: GC, MT

NO REF SOV: 007

OTHER: 006

Card 2/2 *fill*

L 3398-66 EWT(m)/EPF(c)/EWP(j) RM

ACCESSION NR: AP5024214

UR/0020/65/164/003/0563/0566

AUTHORS: Vinogradova, S. V.; Korshak, V. V. (Corresponding member AN SSSR); Pankratov, V. A.; Tur, D. R.

TITLE: Investigation of the kinetics of polycondensation of bisphenols with the acid chloride of terephthalic acid

SOURCE: AN SSSR. Doklady, v. 164, no. 3, 1965, 563-566

TOPIC TAGS: polycondensation, terephthalic acid, bisphenol, organic compound, polymer

ABSTRACT: The kinetics of the polycondensation of bis-(4-oxyphenyl)-methane, 2,2-bis-(4-oxyphenyl) propane, 2,2-bis-(4-oxyphenyl)-hexafluoropropane, bis-(4-oxyphenyl)-phenylmethane, 2,2-bis-(4-oxyphenyl)-2-phenylethane, bis-(4-oxyphenyl) trifluoromethylphenylmethane, and bis-(4-oxyphenyl)-diphenylmethane with the acid chloride of terephthalic acid in the temperature region from 160-200C was investigated. The purpose of the investigation was the determination of the influence of the nature of substituents at the central carbon atom of bisphenols on the reactivity of the latter. The reactions were carried out in ditoluy methane in a

Card 1/3

L 3398-66

ACCESSION NR: AP5024214

3

current of dry oxygen-free nitrogen. The experimental results are shown graphically (see Fig. 1 on the Enclosure). Energies of activation and frequency factors derived from Arrhenius' plots are tabulated. A reaction mechanism is proposed. It is concluded that the reactions studied belong to the slow class of bimolecular reactions. Orig. art. has: 2 tables, 3 graphs, and 2 formulas.

ASSOCIATION: Institut elementoorganicheskikh sojedineniy, Akademi nauk SSSR
(Institute for Heteroorganic Compounds, Academy of Sciences, SSSR) *44, 55*

SUBMITTED: 22Mar65

ENCL: 01

SUB CODE: CC, GC

NO REF SOV: 002

OTHER: 000

Card 2/3

L 3398-66

ACCESSION NR: AP5024214

ENCLOSURE: 01 *0*

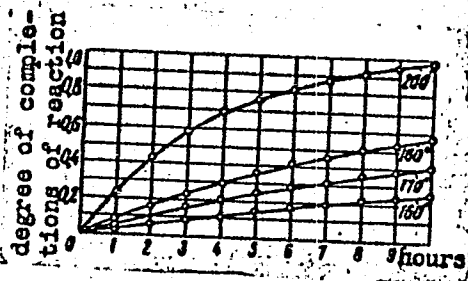


Fig. 1. The dependence of degree of completion of reaction on the duration of polycondensation of the acid chloride of terephthalic acid with bis-(4-oxyphenyl)diphenylmethane

Card 3/3 *ked*

L 18568-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM

ACC NR: AP6002428

(A)

SOURCE CODE: UR/0020/65/165/005/1088/1090

AUTHORS: Korshak, V. V. (Corresponding member AN SSSR); Manucharova, I. F.;
Frunze, T. M.; Baranov, Ye. L.

ORG: Institute for Heteroorganic Compounds, Academy of Sciences SSSR (Institut
elementoorganicheskikh soedineniy Akademii nauk SSSR)

TITLE: Determination of the degree of crystallinity in styrene ϵ -caprolactam
graft copolymers by a calorimetric method, and the investigation of their
thermostability 7.4.1.66

SOURCE: AN SSSR. Doklady, v. 165, no. 5, 1965, 1088-1090

49

TOPIC TAGS: polymer, crystalline polymer, graft copolymer, polyamide

ABSTRACT: The degree of crystallinity in styrene- ϵ -caprolactam graft copolymers as a function of the copolymer composition and of molecular weight was determined by a thermogravimetric method. The experimental procedure followed that described by K. A. Andriancv and I. F. Manucharova (Izv. AN SSSR, OKhN, 1962, 420). X-ray pictures of the synthesized polymers are presented. The experimental results are shown in graphs and tables (see Fig. 1). The degree of crystallinity was calculated by the expression $G = 2.33 Q$, where G is the degree of crystallinity

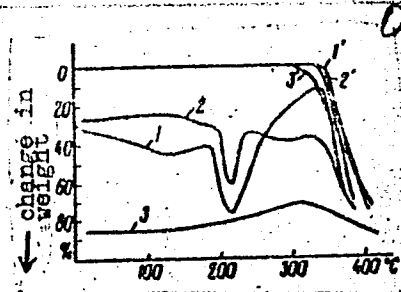
UDC: 541.66

Card 1/2

L 18568-66

ACC NR: AP6002428

Fig. 1. Curves for weight loss (1', 2', 3') and differential temperature change (1, 2, 3) for the polymers: 1,1'-poly- ϵ -caproamide; 2,2' graft copolymer, containing styrene and caprolactam in the ratio 20:80 (parts by weight); 3, 3' polystyrene.



in % and Q is the heat of fusion in cal/g. It is concluded that the above formula may be used to determine the degree of crystallinity in any graft copolymers of ϵ -caprolactam and amorphous co-component. For other starting reagents, the formula differs from the above only in the different value of the empirical constant. Orig. art. has: 1 table and 5 graphs.

SUB CODE:07, 11/SUBM DATE: 30Jun65/ ORIG REF: 019/ OTH REF: 002

Card 2/25M

L. 16103-66 EWP(j)/EWT(m) RM/vv
ACC NR: AP6003250 (A)

SOURCE CODE: UR/0020/65/165/006/1323/1324

AUTHOR: Slonimskiy, G. L.; Korshak, V. V. (Corresponding member AN SSSR);
Vinogradova, S. V.; Kitaygorodskiy, A. I.; Askadskiy, A. A.; Salazkin, S. N.;
Belavtseva, Ye. M.

51
53

ORG: Institute of Hetero-organic Compounds, Academy of Sciences, SSSR (Institut
elementoorganicheskikh soedineniy Akademii nauk SSSR)

1744135 B

TITLE: Difference in supramolecular structures of amorphous polyarylates obtained
by interfacial polycondensation and high-temperature polycondensation in homo-
geneous media

SOURCE: AN SSSR. Doklady, v. 165, no. 6, 1965, 1323-1324, and insert facing
p. 1324

TOPIC TAGS: polyaryl plastic, interfacial polycondensation, polycondensation,
polymer impact strength, tensile strength

ABSTRACT: Electron-microscopic and mechanical studies were carried out on special-
ly synthesized types of F-7 polyarylates (products of polycondensation of tereph-
thaloyl chloride with phenolphthalein anilide). The results fully confirmed the
hypothesis that in interfacial polycondensation, when the polymer is formed at the
interface of two liquid phases in which it is insoluble, the supramolecular
Card 1/2 UDC: 541.64

2

L 16103-66

ACC NR: AP6003250

structure should be globular, whereas in homogeneous polycondensation in a solvent medium, the structure of the polymer is predominantly fibrillar. The mechanical properties were consistent with these observations: polyarylate F-7², prepared by ¹⁵ polycondensation in a homogeneous medium, had a greater impact and tensile strength and higher softening point than polyarylate F-7-M, synthesized by interfacial polycondensation. This fact is particularly notable, since it shows that an amorphous polymer of the same chemical structure can have different softening points depending upon the supramolecular structure. Orig. art. has: 1 table.

SUB CODE: \, 07/ SUBM DATE: 14Jul65 / ORIG REF: 004

Card 2/2 *A.H.*

L 36974-66 EWP(j)/EWT(m) RM
ACC NR: AP6008500

SOURCE CODE: UR/0062/66/000/001/0070/0076

AUTHOR: Vinogradova, S. V.; Korshak, V.V.; Valetskiy, P.M.; Mironov, Yu. V. 7/6

ORG: Institute of Heteroorganic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy, Akademii nauk SSSR); Moscow Chemical Technology Institute im. D. I. Mendeleev (Moskovskiy Khimiko-tehnologicheskii institut) 44 B

TITLE: Heterochain polyesters. Communication 57. Kinetics of the polycondensation of acid chlorides of aromatic dicarboxylic acids with polyhydric aliphatic alcohols

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 70-76

TOPIC TAGS: chemical kinetics, aromatic polycarboxylic acid, aliphatic alcohol, polycondensation, carboxylic acid chloride, HYDROGEN CHLORIDE

ABSTRACT: The kinetics of the polycondensation of the acid chlorides of terephthalic and isophthalic acids with trimethylolpropane and trimethylolpropane are investigated with respect to the evolution of hydrogen chloride during the reaction. Polycondensation is carried out in a dowtherm medium in a stream of dry oxygen-free nitrogen whose delivery rate was controlled by a flow meter. The kinetics of polycondensation are studied in the temperature range of 110-150C. In all experiments the quantity of the initial substances and their concentrations are rigorously constant and the ratio is eqimolar. The hydrogen chloride is

UDC: 531.1+542.952+547.58

Card 1/2

Card 2/2 275

L 20803-66 EWP(j)/EWT(m)/T RM/WW

ACC NR: AP6005941 (A) SOURCE CODE: UR/0191/66/000/002/0001/0002

AUTHORS: Korshak, V. V.; Mozgova, K. K.; Yegorova, Yu. V.

ORG: none

TITLE: Preparation of multiple grafted copolymers 74415

24
B

SOURCE: Plasticheskiye massy, no. 2, 1966, 1-2

TOPIC TAGS: graft copolymer, polyethylene terephthalate, polystyrene, monomer

ABSTRACT: Polyethylene terephthalate¹ (I) and poly-ε-caproamide were subjected to multiple grafting with a variety of vinyl monomers, using a method previously described by V. V. Korshak, K. K. Mozgova, and M. A. Shkolina (Vysokomolek. soyed., 2, 957, 1960). Up to 30 samples of various copolymers were prepared, some of which contained up to 5 layers of successively grafted polymer, e.g., polystyrene² (II). The yield of copolymer of I and II thus obtained was 1120% (assuming that the weight of starting sample is 100%). Increasing the time of a single grafting (32 hours) yielded less of the grafted polymer (478%) than multiple grafting lasting the same time. The reason for such behavior is explained by a renewal of active centers on the polymer samples by removing them at intervals, washing in benzene,

Card 1/2

UDC: 678-13 2

L 20803-66

ACC NR: AP6005941

and drying at 60C. Properties of multiple grafted copolymers are under investigation. Orig. art. has: 2 tables.

SUB CODE: 11/ SUBM DATE: none

Card 2/2

L 20801-66 EWP(j)/EWT(m)/ETC(m)-6/T IJP(c) RM/WH

ACC NR: AP6005951

SOURCE CODE: UR/0191/66/000/002/0033/0035

AUTHORS: Korshak, V. V.; Sergeev, V. A.; Kozlov, L. V.; Komarova, L. I.

ORG: none

TITLE: Thermal and thermooxidative destruction of phenolformaldehyde oligomers of novolac type

SOURCE: Plasticheskiye massy, no. 2, 1966, 33-35

TOPIC TAGS: phenolformaldehyde, oligomer, thermal decomposition, oxidation

ABSTRACT: Chemical processes occurring in novolac phenolformaldehyde oligomers upon heating at 150--900C have been investigated by elementary analysis, titration for OH groups, and ESR and IR spectral analysis. Oligomers were prepared according to the method described by K. A. Andrianov and D. A. Kardashev (Prakticheskiye raboty po iskusstvennym smolam i plastmassam, ONTI, 1936, str. 198), washed repeatedly with distilled water, and dried at 150C/1--2 mm for 15 hours. The product, containing 2% of free phenol, was subjected to thermal and thermooxidative treatment for 3--4 hours. It was established that the primary act in thermooxidative destruction was oxidation of methyl groups. Cross-linking during thermal

Card 1/2

UDC: 678.632'32'21.01:536.45

L 20001-46

ACC NR: AP6005951

treatment of the novolac oligomers mainly occurs due to formation of aromatic etheral bonds. This process is facilitated by conversion of polymeric hydrogen bonds to dimeric ones. Orig. art. has: 2 tables and 2 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 008

Card 2/2

L 22742-66 EWP(j)/EWT(m)/ETC(f)/ENG(m)/T RM/DS/WW

ACC NO: AP6006356 (A) SOURCE CODE: UR/0413/66/000/002/0093/0094

AUTHOR: Korshak, V. V.; Rogozhin, S. V.; Davankov, V. A.

ORG: none

TITLE: Method of preparing an iodo- and bromomethylated copolymer.
Class 39, No. 178098 ¹⁵

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2,
1966, 93-94

TOPIC TAGS: methylation, bromine, iodine, copolymer

ABSTRACT: This Author Certificate describes proposed methods for preparing the iodo- and bromomethylated copolymer of styrene with divinylbenzene, an intermediate product for synthesizing ion-exchange resins from the chloromethylation product of a copolymer. To obtain a higher yield of compounds containing highly active elements in subsequent reactions, the chloromethylation product is treated with solutions of iodides and bromides of alkali metals in organic solvents.

[LD]

UDC: 661.183.123:678.746.22-136.622

SUB CODE: 011/
Card 1/1 *LD*

SUBM DATE: 29Sep64

L 21421-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM
ACC NR: AP6009796

SOURCE CODE: UR/0062/66/000/002/0308/0314

25
24
B

AUTHOR: Vinogradova, S. V.; Salazkin, S. N.; Korshak, V. V.

ORG: Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Heterochain polyesters. 62. Polyarylates from bisphenyldicarboxylic acids

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1966, 308-314

TOPIC TAGS: aromatic polyester, polyarylate, bisphenyl dicarboxylic acid, dihydric phenol, heat resistant polymer, polymer solubility, polymer film

ABSTRACT: The combination of high heat resistance^b and good mechanical properties with solubility in organic solvents was the purpose of this study of polyarylates (PA), synthesized from a dihydric phenol and a bicyclic dicarboxylic aromatic acid. 4,4'- (I) or 2,2'-bisphenyldicarboxylic (II) or combinations of (I) and (II) acids were used as the bicyclic acid component, and bisphenol-A, phenolphthalein, phenolphthalein anilide, "phenoldiphenol" [2,2'-bis-(4-hydroxybenzoyl)bisphenyl] or xylenolphthalein were used as the phenolic component. Nonmixed and mixed PA were synthesized by equilibrium condensation in a nitrogen stream, in "Sovol" solution (Sovol-chlorinated bisphenyl). Only the acid components, i.e., (I), (II), or terephthalic acid, were used to prepare mixed PA. It was found that PA from (I) have a higher softening temperature as compared with analogous polyterephthalates and are still

Card 1/2

UDC: 541.6+542.91

I 71421-66

ACC NR: AP6009796

soluble in organic solvents (exception: PA from bisphenol-A). This solubility makes it possible to use these PA for manufacturing films, fibers, and lacquer coatings. The dependence of the physical properties on the structure and composition of the PA obtained is discussed. Among other points it was noted that loose packing of polymer chains in phthaloyl or phthaloyl anilide derivatives is caused by the size of these side groups and the effect of the ortho-substitution in (II), which sharply decreases the softening temperature. Both nonmixed and mixed PA containing (I) can form mechanically strong films from solutions; such films retain their good mechanical properties at 290C. Orig. art. has: 1 figure and 5 tables. [BN]

SUB CODE: 07, 11/ SUBM DATE: 19Sep63/ ORIG REF: 010/ OTH REF: 010/ AID PRESS: 1221

Card 2/2 ULR

L 31922-66 EWT(m)/EWP(j)/T IJP(c) WW/JWD/RM

ACC NR: AP6007972 (A) SOURCE CODE: UR/0191/66/000/003/0057/0059

AUTHOR: Sergeyev, V. A.; Korshak, V. V.; Kozlov, L. V.

ORG: none

TITLE: Thermal destruction of thermoactive resins containing nitrogenSOURCE: Plasticheskiye massy, no. 3, 1966, 57-59

TOPIC TAGS: resin, nitrogen compound, thermal decomposition

ABSTRACT: Thermal destruction of the thermoactive resins obtained by a polycondensation of aniline, p-aminophenol, m-phenylenediamine, 2,6-diaminopyridine, fuchsin, melamine, dicyandiamide, or urea with formaldehyde was studied at 330 and 900C. At 330C, the highest amount of NH₃ was evolved from the dicyandiamidephenol (4:6), dicyandiamide, and 2,6-diaminopyridine resins. No NH₃ was evolved from melamine and aniline resins. At 330C, the lowest loss of weight was observed in fuchsin, p-aminophenol, and m-phenylenediamine, and the highest in urea resins. Heating the resins at 900C, a 19-65% yield of solid product was obtained. The resins of p-aminophenol and m-phenylenediamine produced 2-2 1/2 times more solid than the aniline resin. Apparently, the anilineformaldehyde resin is less cross-linked and, subsequently, thermally less stable. Even though m-phenylenediamine and p-aminophenol resins have the same structure and the same number of cross-links, their thermal behavior was not alike.

Card 1/2

UDC: 678.652.019.35

L 31922-66 APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000824930009

ACC NR: AP6007972

Due to a larger number of C-C links and participation of phenolic OH groups in cross-linking, the p-aminophenol resin^s gave a higher yield of solid residue (secondary polymer) and of nitrogen. The C-C links are thermally more stable than the C-N and, therefore, thermoprocessing of resins with a condensed aromatic cycle should give a higher yield of secondary polymers than that of the resins of aromatic nitrogen heterocycles. The highest yield of gaseous products was obtained from resins of p-aminophenol, 2,6-diaminopyridine, m-phenylenediamine, and aniline. Orig. art. has: 2 tables.

SUB CODE: 11,07/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 002

mt
Card 2/2

L 31881-66 EWT(m) IJP(c) RM/DS
 ACC NR: AP6012533 SOURCE CODE: UR/0062/66/000/003/0544/0546

AUTHOR: Korshak, V. V.; Rogozhin, S. V.; Davankov, V. A.; Vyrbanov, S. G. 28

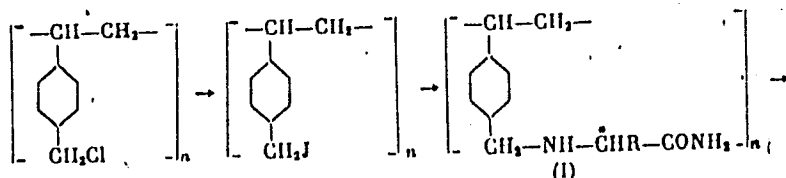
ORG: Institute of Elemental Organic Compounds, Academy of Sciences SSSR (Institut B
 elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Synthesis of optically active ionites 1

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 3, 1966, 544-546

TOPIC TAGS: ion exchange resin, amino acid, organic amide, hydrolysis

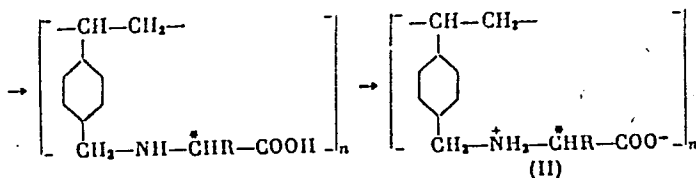
ABSTRACT: An attempt was made to use optically active α -amino acids and their deriva-
 tives for synthesis of ionites according to the following scheme:



UDC: 542.91+535.56+661.183.123

Card 1/2

ACC NR: AP6012533



It was shown that chloromethylated styrene-divinylbenzene copolymers do not react with α -amino acids and their derivatives under conditions which exclude racemization. The conditions for the reaction of iodomethylated styrene-divinylbenzene copolymer with α -amino acid amides were investigated and anionites on their base were obtained. The potentiometric titrations of ionite obtained on the basis of D,L-leucinamide showed that it is a weakly basic monofunctional anionite. Its swelling in water was very low. It swells much better in dioxane, acetone and especially well in methanol and ethanol. Its amide group can be easily hydrolyzed by boiling in 20% solution of HCl for 3-5 hrs. This produces amphoteric ionite. An optically active anionite was produced from styrene copolymer containing 2% of divinylbenzene with L-leucinamide. Its analytical capacity was 2.90 mg-equiv/g. Using this ionite separation of racemic D,L-mandelic acid was achieved. L(+) mandolic acid of a high degree of optical purity was thus obtained. Hydrolysis of amide groups produced amphoteric ionite. Orig. art. has: 2 figures, 2 tables.

SUB CODE: 07/ SUBM DATE: 08Jul65/ ORIG REF: 001/ OTH REF: 003

20
 Card 2/2

ACC NR: AP6018122

SOURCE CODE: UR/0191/66/000/006/0016/0018

AUTHOR: Valgin, A. D.; Korshak, V. V.; Kutepov, D. F.; Vosilyute, S. V.

ORG: none

TITLE: Synthesis of unsaturated polyesters in the presence of alkyl-bis-(beta-hydroxyethyl)-amines and their investigation

SOURCE: Plasticheskiye massy, no. 6, 1966, 16-18

TOPIC TAGS: polyester plastic, phthalic anhydride, amine, chemical reaction kinetics, polycondensation, *ORGANIC SYNTHETIC PROCESS*

ABSTRACT: The use of alkyl-bis-(beta-hydroxyethyl)-amines (A) in the synthesis of unsaturated polyesters was examined. The polyester was synthesized from maleic anhydride:phthalic anhydride:ethylene glycol, 1:1:0.55 ratio, by melting in the presence of small amounts of A where the alkyl was methyl, propyl, isopropyl or hexyl. Reaction kinetics showed that even only 0.05 mol of A per mol of unsaturated acid accelerated reaction 1.5 times. Increasing the amount of A to 0.3 mols accelerated the polycondensation and gave higher molecular weight polyesters. The longer the alkyl substituent at the N-atom of the amine, the more effective the accelerator. Orig. art. has: 3 tables and 3 figures.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 002
Card 1/1 UDC: 678.67414.0

L 44294-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6011282 (A) SOURCE CODE: UR/0413/66/000/006/0159/0159

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000824930009

INVENTOR: Korshak, V. V.; Kamenskiy, I. V.; Sanin, I. K.

ORG: none

TITLE: Preparation of resin with furfurylhydroxysilanes.¹⁵ Class 39, No. 149882¹⁵

SOURCE: Izobreteniya, promyshlennyye obrastzy, tovarnyye znaki, no. 6, 1966, 159

TOPIC TAGS: resin, furfurylhydroxysilane, heat resistant polymer

ABSTRACT: This Author Certificate introduces a method for preparing furfurylhydroxysilane resins. To extend the variety of heat-resistant polymer materials with controlled viscosity, furfurylhydroxysilanes are heat-treated in the presence of peroxide-type initiators and ionic catalysts and then distilled by conventional methods. (LD)

SUB CODE: 11/ SUBM DATE: 18Sep61/

Card

L 18415-66 EWT(m)/EWP(J)/T/ETC(m)-6 WW/RM
ACC NR: AP6003421 (A)

SOURCE CODE: UR/0190/66/008/001/0109/0114

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Korchevey, M. G.; Kul'chitskiy, V. I.

ORG: Institute of Elementoorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR); Moscow Institute of Chemical Engineering im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Copolymers of allyl-substituted unsaturated polyarylates with vinyl and allyl monomers (81st Report in Series "On Heteroaliphatic Polyesters")

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 109-114

TOPIC TAGS: polyaryl plastic, copolymerization, thermal stability, tensile strength, methyl methacrylate

ABSTRACT: Allyl-substituted polyarylates (I) of different molecular weights and concentrations of allyl groups copolymerized with various vinyl and allyl monomers were investigated. The solubility, thermal stability, and tensile strength of the products were studied. Most suitable of the examined (I) were those derived from terephthalic chloroanhydride, phenolphthalein, diallyldian, and 2-allylphenol, the structure of which may be represented by the formula:

Card 1/2

UDC: 66.095.26+678.674

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L 17722-66 EWP(j)/EWT(m)/ETC(m)-6/T RM/WW

ACC NR: AP6003425

(A)

SOURCE CODE: UR/0190/66/008/001/0131/0135

AUTHORS: Vinogradova, S. V.; Korshak, V. V.; Papava, G. Sh.; Tsiskarishvili,
P. D.

ORG: Institute for Heteroorganic Compounds, AN SSSR (Institut
elementoorganicheskikh soyedineniy AN SSSR); Institute for Chemistry, im.
Melikishvili, AN Georgian SSR (Institut khimi AN GruzSSR)

TITLE: Mixed block-polyarylates based on polyorganosiloxane oligomer, dihydroxy phenols, and chlorides of aromatic dicarboxylic acids

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 131-135

TOPIC TAGS: oligomer, polymer, block copolymer, polyaryl plastic, organosilicon compound, organic synthetic process

ABSTRACT: Block-polyarylates based on polyorganosiloxane oligomer, dian, phenolphthalein and chlorides of terephthalic and isophthalic acids were synthesized to extend the previously published work on block-polyarylates by S. V. Vinogradova, V. V. Korshak, G. Sh. Papava (Izv. AN SSSR, ser. khimich., 1964,

Card 1/2

UDC: 541.64+678.674+678.84 2

L 17722-66

ACC NR: AP6003425

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1296). The reaction yield, viscosity in tricresol solution, softening temperature, and elemental composition of the synthesized block-polymers were determined. The experimental results are presented in graphs and tables (see Fig. 1). X-ray

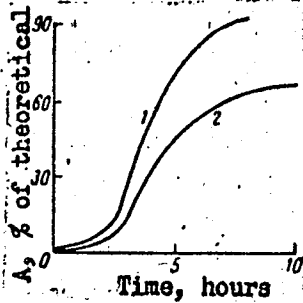


Fig. 1. Determination of the quantity of hydrogen chloride (A), liberated during the reaction between chloranhydride of terephthalic acid: 1 - dian; 2 - polyorganosiloxane oligomer in ditolylmethane solution (concentration 0.05 mole/liter).

diffraction pictures of the polymers were determined. It was found that dian polyarylates could absorb up to 40% of the siliconorganic block-component and still retain a relatively high softening temperature. The block-polyarylates possess good thermal properties and yield strong, transparent, and thermally stable films from solutions. Orig. art. has: 1 table and 2 graphs.

SUB CODE: 07/ SUBM DATE: 01Mar65/ ORIG REF: 004

Card 2/2 nst

L 14203-66 ENT(m)/ENT(j)/T WW/JWD/RM
ACC NR: AP6003430 SOURCE CODE: UR/0190/66/008/001/0188/0188

AUTHOR: Valgin, A. D.; Korshak, V. V.; Kutepov, D. F.

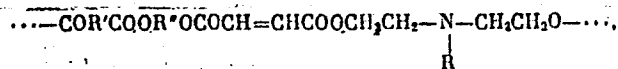
ORG: none

TITLE: Synthesis of new unsaturated polyesters

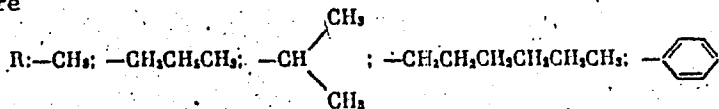
SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 188

TOPIC TAGS: polyester, heat resistant material

ABSTRACT: New unsaturated copolymeric polyesters containing a tertiary nitrogen atom in the backbone have been synthesized:



where



Card 1/2

UDC: 541.64+678.674

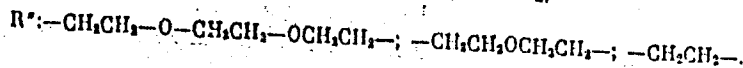
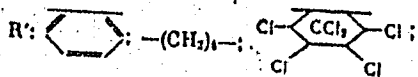
15,44,55

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38
B

L 14203-66

ACC NR: AP6003430

2



Solutions of these polyesters in styrene or TGM-3 solvent [unspecified] were cured with peroxides at room temperature; styrene solutions were cured most readily. Cure time decreased with decreasing length of R, but polyesters having R = phenyl cured much faster than those with R = CH₃. Cure time decreased with decreasing length of R'. The time of cure with benzoyl peroxide at room temperature was 15 min to 8 days or more. The Vicat softening point for polyesters based on phthalic anhydride and styrene reached 180C. The materials exhibited good physical and mechanical properties immediately after the cure.

[SM]

SUB CODE: 11/07/ SUBM DATE: 06Jul65/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS:

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2/2

L 22750-66 EWT(m)/EWP(j)/T IJP(c) WH/RM
ACC NR: AP6010109 (A) SOURCE CODE: UR/0190/66/008/003/0455/0460 B 59

AUTHORS: Frunze, T. M.; Korshak, V. V.; Baranov, Ye. L.; Lokshin, B.V.

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Copolymerization of styrene with N-methacryloylcaprolactam in the presence of ε-caprolactam

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 3, 1966, 455-460

TOPIC TAGS: caprone, styrene, copolymerization, copolymer, chain polymer, monomer

ABSTRACT: The copolymerization of styrene with N-methacryloylcaprolactam (MACL) has been investigated. The optimum copolymerization conditions were established. The empirical dependence of the MACL in the copolymer on the amount in the feed mixture was found. The reactivities of these monomers during copolymerization in ε-caprolactam solution were determined. The chain transfer constant through ε-caprolactam was determined. It is shown that ε-caprolactam does not considerably affect the chain growth and that it is a suitable solvent for the reaction. Orig. art. has: 3 figures and 5 tables. [Based on author's abstract] [NT]

Card 1/2

UDC:66.095.26+678.13+678.675+678.746

L 22537-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) WW/RM

ACC NR: AP6010118 (A) SOURCE CODE: UR/0190/66/008/003/0519/0525

AUTHOR: Korshak, V. V.; Frunze, T. M.; Kurashev, V. V.; Shleyfman, R. B.; Danilevskaya, L. B. 55
8

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorgani-cheskikh soyedineniy AN SSSR)

TITLE: The use of a trifunctional activator for branched-polyamide synthesis

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 3, 1966, 519-525

TOPIC TAGS: polymerization initiator, polyamide, polymerization, polymer, elasticity, impact strength, caprolactam, lactam

ABSTRACT: N, N', N"-trimesinoyl-ter-caprolactame has been synthesized and was shown to be an effective activator of anionic polymerization of ε-caprolactame, making it possible to produce insoluble polymers. The physical and mechanical properties of these polyamides were analyzed. It was found that they have higher elasticity and impact strength properties than those of linear polyamides prepared in the presence of monofunctional activators. It is shown that the use of a trifunctional activator leads to the formation of branched and crosslinked polyamides. Orig. art. has: 4 figures and 2 tables. [Based on authors' abstract.] [NT]

SUB CODE: 07/ SUBM DATE: 10Apr65/ ORIG REF: 005/ OTH REF: 005/

Card 1/1 B.L.G.

UDC: 541.64+678.675

the influence of interchain exchange and rearrangement of links on molecular weight distribution. The number of branches per molecule according to the Zimm-Stockmayer theory corresponds to the numbers shown in the experimental data. The possibility of formation of intramolecular rings in branched polyarylate samples was proposed on the basis of experimental data. Orig. art. has: 4 figures and 2 tables.

APPROVED FOR RELEASE: 06/14/2000 SUB CODE: 07/ SUBM DATE: 15May65/ ORIG REF: 013/ OTH REF: 009/

Card 1/1 B.L.G.

UDC: 678.01:53+478.647

L 23865-66 EWI(m)/EWP(j)/I/ETC(m)-6 IJP(c) WW/RM
ACC NR. AP6014415

SOURCE CODE: UR/0062/66/000/004/0772/0772

AUTHOR: Korshak, V. V.; Izvneyev, A. A.; Vdovina, L. I.

ORG: Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR); Buryat Scientific Research Institute for Comprehensive Studies, Siberian Department of the Academy of Sciences SSSR (Buryatskiy kompleksnyy nauchno-issledovatel'skiy institut Sibirskogo Otdeleniya Akademii nauk SSSR)

TITLE: Synthesis of new polybenzimidazoles

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 4, 1966, 772

TOPIC TAGS: heat resistant polymer, polybenzimidazole

ABSTRACT: New polybenzimidazoles have been synthesized which exhibit both high thermal stability and solubility in a wide range of organic solvents. It is noted that polybenzimidazoles prepared heretofore were soluble in a limited number of solvents only. The new polybenzimidazoles were prepared from bis(3,4-diaminophenyl) ether and various diphenyl alkyl- or aryl-dicarboxylates in vacuum (10^{-1} mm Hg) at 260—320C. The polymers had the general formula

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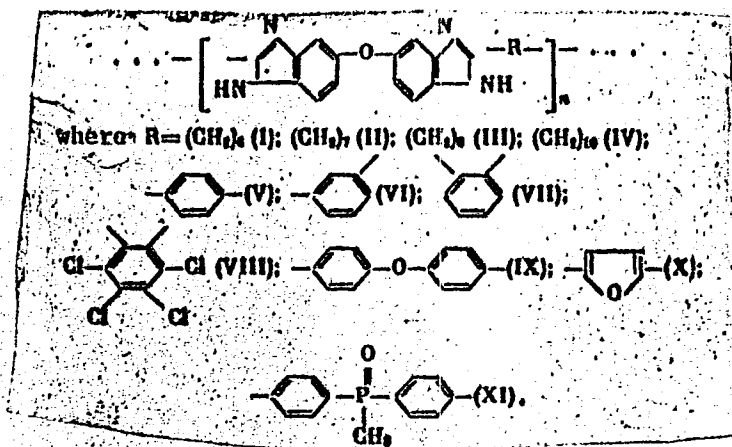
Card 1/2

UDC: 542.91+541.16+547.7

2

L 23865-66

ACC NR: AP6014415



Weight loss began at 380—400C for aliphatic R (polymers I to IV) and 480—500C for aromatic R (polymers V to XI). The polymers were soluble in formic acid, dimethyl sulfoxide, dimethylformamide, and dimethylacetamide. Strong elastic films were produced from 1% solutions in concentrated formic acid. [SM]

SUB CODE: 11/ SUBM DATE: 14Jan66/ ORIG REF: 003/ OTH REF: 003/ ATD PRESS: 4246

Card 2/2dda

L 26092-66 EWP(j)/EWT(m)/ETC(m)-6/T IJP(c) RM/WH
ACC NR: AP6015045 (A) SOURCE CODE: UR/0190/66/008/005/0804/0808 21

AUTHOR: Rusanov, A. L.; Korshak, V. V.; Krongauz, Ye. S.; Nemirovskaya, I. B. 20
B

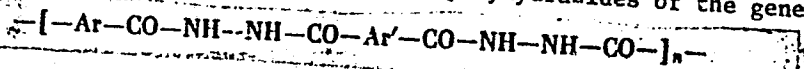
ORG: Institute of Heteroorganic Compounds AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Synthesis and investigation of poly-1,3,4-oxadiazoles 7

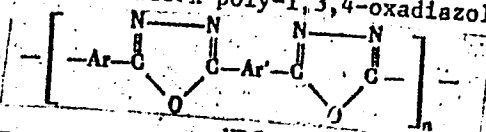
SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 5, 1966, 804-808

TOPIC TAGS: polyoxadiazole synthesis, polyoxadiazole property, heat resistant polymer

ABSTRACT: Fourteen high-molecular-weight polyhydrazides of the general formula



have been prepared by low-temperature solution polycondensation of dihydrazides and dichlorides of aromatic dicarboxylic acids in hexamethylformamide. The polyhydrazides had softening points of 280--400C. Cyclodehydration of the polyhydrazides at 250--320C in vacuum yielded fourteen poly-1,3,4-oxadiazoles of the general formula



UDC: 541.64+678.6

Card 1/2

L 26092-66

ACC NR: AP6015045

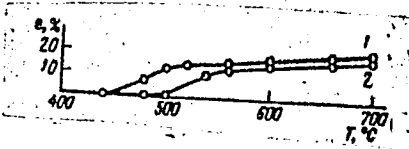




Fig. 1. Thermomechanical curves of two poly-1,3,5-oxadiazoles

1 - Ar and Ar' in Formula (B) are ;
 2 - Ar and Ar' in Formula (B) are , respectively.

The polyoxadiazoles had a softening point above 400C and were soluble without decomposition in concentrated sulfuric acid. Thermomechanical curves of the two most heat-resistant polyoxazoles synthesized are given in Fig. 1. Orig. art. has: 2 figures and 1 table.

[B0]

SUB CODE: 07, 11/ SUBM DATE: 03Apr65/ ORIG REF: 003/ OTH REF: 005/ ATD PRESS: 4253

Card 2/2 CC

L 26121-66 EWP(j)/EWT(m)/ETC(m)-6/T IJP(c) RM/WW
ACC NR: AP6015046 (4) SOURCE CODE: UR/0190/66/008/005/0809/0814
26
25
B

AUTHOR: Vinogradova, S. V.; Korshak, V. V.; Vygodskiy, Ya. S.

ORG: Institute of Heteroorganic Compounds AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Aromatic polypyromellitimides from aromatic diamines which contain a side phthalide or phthalimidine group

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 5, 1966, 809-814

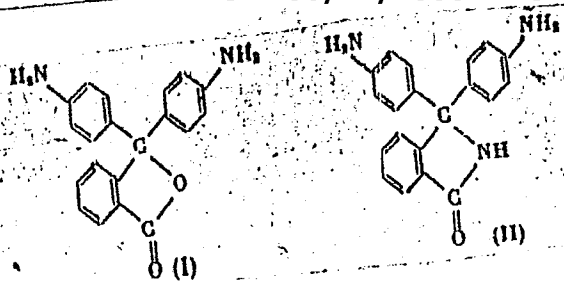
TOPIC TAGS: polypyromellitimide, anilinephthalein, anilinephthalein imide, pyromellitic anhydride, heat resistant polymer, thermostable polymer

ABSTRACT: This study was prompted by the possibility for using some aromatic diamines for the synthesis of polypyromellitimides other than the previously used aromatic diamines of the type AN-Ar-NH₂ or H₂N-Ar-R-Ar-NH₂, where Ar is an arylene radical and R is -O-, -S-, -CH₂- or -C(CH₃)₂-. In particular, the use of the diamines 3,3-bis-(4-aminophenyl)-phthalide (I), also called anilinephthalein, 3,3-bis-(4-aminophenyl)phthalimidine (II), also called anilinephthalein imide, was considered to be promising for obtaining soluble and modifiable (i.e., reactive) polypyromellitimides. Bisphenols of similar structure imparted valuable physical chemical properties to the arylates:

UDC: 678.675

Card 1/3

ACC NR: AP6015046



The polymers investigated were obtained in two stages: 1) a polyaminoacid, and 2) a polyamide. The polyaminoacid stage was obtained by polycondensation of one of the above-mentioned amines with pyromellitic anhydride in dimethylformamide or dimethylacetamide solutions at 25C; maximum yields were achieved with the equimolar ratio of components. It was observed that at this temperature, the maximum viscosity, i.e., the maximum polymerization degree, was achieved after 5 hours, after which time destructive hydrolysis was observed. The second stage, i.e., polycyclization of the polyaminoacid films obtained from their solutions in organic solvents or mixtures of organic solvents. In such films the IR spectra indicated complete disappearance of COOH group adsorption bands and considerable changes in the position of imide groups. Another chemical method of polycyclization consisted of treatment with a 1:1 acetic anhydride and pyridine mixture with subsequent rapid heating to 300C in vacuum. Polypyromellitimides obtained with I or II display considerable

Card 2/3

L 26121-66
ACC NR: AP6015046

heat resistance, thermal stability, and resistance to light and oxidation, especially as compared with polypyromellitimides from m- or o-phenylenediamine, benzidine or 4,4'-diaminodiphenoxide. The study confirmed that the presence of phthalide or phthalimide groups at the central diamine atom results in the formation of soluble aromatic polyimides. Orig. art. has: 3 figures. [BN]

SUB CODE: 07, 11/ SUBM DATE: 14Apr65/ ORIG REF: 002/ OTH REF: 010/ ATD PRESS: 4252

Card 3/3 CC

L 41356-66 EWP(m)/EWP(j)/T LJP(c) W W/RM
ACC NR: AP6025621 SOURCE CODE: UR/0413/66/000/013/0071/0071

AUTHORS: Vinogradova, S. V.; Korshak, V. V.; Vygodskiy, Ya. S. 28
8

ORG: none

TITLE: Preparative method for polyimides.¹ Class 39, No. 183383¹⁵

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 77

TOPIC TAGS: polyimide, ^{resin,} heat resistant plastic, nitrogen compound

ABSTRACT: This Author Certificate presents a method for preparing polyimides by reacting aromatic or aliphatic diamines with aromatic tetracarboxylic dianhydrides. To obtain polyimides with high thermal stability, 1,4,5,8-naphthalene-tetracarboxylic dianhydride is used. [04]

SUB CODE: 07/ SUBM DATE: 01Aug63/ ATD PRESS: 5058

UDC: 678.675'7'5

Card 1/1 11b

ACC NR: AP6025623 SOURCE CODE: UR/0413/66/000/013/0071/0071

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Lebedeva, A. S.; Bulgakova, I. A.

ORG: none

TITLE: Preparative method for polyarylates.¹ Class 39, No. 183386 [announced by Institute of Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)]¹⁵

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 77-78

TOPIC TAGS: polyarylate, ^{plastic} dicarboxylic acid, polycondensation

ABSTRACT: This Author Certificate presents a method for preparing polyarylates by polycondensation of dicarbonyl chlorides with bisphenols. To broaden the assortment of polyarylates having high thermal stability, either bis(hydroxyphenyl)pyromellitimide or bis(hydroxyphenyl)pyromellitic acid is used as the bisphenol. [04]

SUB CODE: 07/ SUBM DATE: 05Jul65/ ATD PRESS: 5059

UDC: 678.673'52'52

Card 1/1 2C

L 43767386 EWT(m)/EWP(j)/T WW/JW/JWD/RM

ACC NR: AP6029920 SOURCE CODE: UR/0413/66/000/015/0088/0088

INVENTOR: Korshak, V. V.; Zamyatina, V. A.; Oganessian, R. M.

35
B

ORG: none

TITLE: Preparative method for an organoboron polymer Class 39, No. 184444 | 5

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 88

TOPIC TAGS: boron compound, organoboron polymer

ABSTRACT: An Author Certificate has been issued for a preparative method for an organoboron polymer based on borazine. To impart valuable properties [unspecified] to the polymer, N,N',N''-triphenylborazine and dihydroxymethyldecaborinene [sic] are heated together. [SM]

SUB CODE: 11/ SUBM DATE: 16Jun61/ ATD PRESS: 5048

Card 1/1 Rjm

UDC: 678.86.27

15-66 EWT(m)/T/EWP(1) IJP(c) WW/RM

ACC NR: AP6029924

(A)

SOURCE CODE: UR/0413/66/000/015/0089/0089

INVENTOR: Vinogradova, S. V.; Korshak, V. V.; Korzeneva, Yu. I.; Alymova, L. A. - 27

ORG: none

TITLE: Preparative method for unsaturated polyesters. Class 39, No. 184448. 15

[announced by Institute of Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 89

TOPIC TAGS: polyester resin, unsaturated polyester, heat resistant plastic, chemical resistant plastic

ABSTRACT: An Author Certificate has been issued for a preparative method for saturated polyesters involving the polycondensation of unsaturated acids (or hydrides) with dihydric alcohols. Heat and chemical resistance of the polyesters improved by using the alcohol which is a reaction product of an alkylene oxide with a resorcinol or hydroquinone, such as 1,3- or 1,4-bis[2-hydroxy(propoxy)]benzene. [SM]

SUB CODE: 11/ SUBM DATE: 15/Apr65/ ATB PRESS: 5068

1/1 27

UDC: 678.674.1448.52

LOKSHIN, B.V.; MOZGOVA, K.K.; KORSHAK, V.V.; YEGOROVA, Yu.V.

Graft copolymers. Mechanism of grafting into polyethylene
terephthalate. Dokl. AN SSSR 166 no.1:118-121 Ja '66.

(MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
2. Chlen-korrespondent AN SSSR (for Korshak). Submitted
April 20, 1965.

28456-66 EMP(e)/BWT(m)/EMP(j)/T IJP(c) UN/RM/WH
ACC NR: AP6018060 (A) SOURCE CODE: UR/0020/66/168/003/0599/0602

AUTHOR: Rabinovich, I. B.; Lebedev, B. V.; Sladkov, A. M.; Kudryavtsev, Yu. P.; Martynenko, L. Ya.; Korshak, V. V. (Corresponding member AN SSSR)

ORG: Gorkiy State University im. N. I. Lobachevskiy (Gor'kovskiy gosudarstvennyy universitet); Institute of Heteroorganic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Carbon polymer with increased heat capacity

SOURCE: AN SSSR. Doklady, v. 168, no. 3, 1966, 599-602

TOPIC TAGS: linear polymer, carbon polymer, chain polymer, polymer cross linking, carbyne, semiconducting polymer, heat capacity

ABSTRACT: The heat capacity of synthesized carbyne has been measured in the 80-300K range to determine the structure of this carbon polymer in view of the increasing interest in semiconductor and thermal properties of the simplest linear chain polymer with conjugated bonds the carbon polymer. Carbyne in the form of a black, fine-grain product, stable in air and containing 99.5% C, was synthesized by oxidation-polydehydrocondensation of acetylene in the presence of bivalent copper. Heat capacity Cp measurements were carried out in helium atmosphere

Card 1/2

UDC: 541.12

L 28456-66

ACC NR: AP6018060

2

with 0.001° accuracy. The C_p value was accurate to 0.5%. For the purpose of comparison, C_p was also measured in Acheson graphite, C-3 domestic graphite, and acetylene black. Heat capacity was found to vary in the sequence: diamond^{1/2} < graphite^{1/2} < acetylene black < carbyne. Heat capacity of all nine carbyne samples was significantly higher than that of graphite, although different in each sample. This difference in C_p from one carbyne sample to another was correlated to the different ratio of the chain to lamellar structure, i.e., with partial cross-linking of carbon chains. The samples with highest C_p were assumed to have a low degree of cross-linking, therefore to be nearly linear carbon polymers, since the value of n in the formula $C_p = AT^n$ was nearly 1 for these samples. The n value for other samples was 1.2—1.5. Therefore, it was concluded that the products synthesized as described were different from graphite and had a lamellar-chain structure. Orig. art. has: 2 figures and 2 tables. [JK]

SUB CODE: 07/ SUBM DATE: 28Oct65/ ORIG REF: 012/ OTH REF: 007
 ATD PRESS: 5005

Card 2/2 LC

SUB CODE: 07/

SUBM DATE: 15Nov65/

ORIG REF: 007/

OTH REF: 003

UDC: 541.66

Card 1/1 Jo

ACC NR: AR6032314 SOURCE CODE: UR/0081/66/000/010/S035/S035
AUTHOR: Solov'yeva, L. K.; Korshak, V. V.; Kamenskiy, I. V.; Taurina, O. F.
TITLE: Epoxy polymers with increased thermal stability
SOURCE: Ref. zh. Khimiya, Part II, Abs. 10S239
REF SOURCE: Tr. Mosk. khim-tekhrol. in-ta im. D. I. Mendeleyeva, vyp, 43, 1965, 214-217
TOPIC TAGS: thermal stability, polymer, epoxy polymer
ABSTRACT: Epoxy polymers were synthesized on the basis of phenolphthalein anilide, epichlorohydrin or dicyclopentadiendioxide. A study was made of the properties of the polymer with both linear and three-dimensional structures. It was found that the epoxy polymer has a higher thermal stability (up to 300C) than polymers from 4,4 dioxydiphenylpropane(ED-5). [Translation of abstract]
SUB CODE: 07/ 7 15

Card 1/1

ACC NR: AP6029049 (A) SOURCE CODE: UR/0413/66/000/014/0080/0080

INVENTORS: Renard, T. L.; Tseytlin, G. M.; Kamenskiy, I. V.; Korshak, V. V.; Lyashevich, V. V.

ORG: none

TITLE: A method for obtaining unsaturated polyester resins. Class 39, No. 183934 [announced by Moscow Institute of Chemical Engineering im. Mondel'ev (Moskovskiy Khimiko-tekhnologicheskii institut)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 80

TOPIC TAGS: rosin, polyester ^{resin} ~~plastic~~, polycondensation

ABSTRACT: This Author Certificate presents a method for obtaining unsaturated polyester resins by polycondensation of a heated hydroxyl-containing component with an unsaturated acid (or with its anhydride). To enlarge the assortment of fire-resisting polyesters characterized by thermal resistance and radiation stability, dichlorhydrin 2,2,5,5-tetra(hydroxymethyl) cyclopentanone is used as a hydroxyl-containing component.

SUB CODE: 11/ SUBM DATE: 29May65

UDC: 678.574

Card 1/1

ACC NR: AP6029050

INVENTORS: Korshak, V. V.; Vinogradova, S. V.; Salazkin, S.

ORG: none

TITLE: A method for obtaining polyarylates. Class 39, No. 183935 [announced by Institute of Organo-elemental Compounds AN SSSR (Institut' elementoorganicheskikh soyedineniy AN SSSR)]

SOURCE: Izobret prom obraz tqv zn, no. 14, 1966, 80

TOPIC TAGS: polyaryl ^{resin} ~~plastic~~, dicarboxylic acid, phenol

ABSTRACT: This Author Certificate presents a method for obtaining polyarylates based upon chloranhydrides of dicarboxylic acids and bis-phenols. To impart noncombustibility to the polyarylates, 2- β -chloroethyl-3,3-bis(4-hydroxyphenyl) phthalimidine is used as bis-phenol.

SUB CODE: 11/ SUBM DATE: 29May65

UDC: 678.673.52.52

Card 1/1

L 10419-67 EWP(m)/EWP(j) IJP(c) RM SOURCE CODE: UR/0413/66/000/015/0088/0088
ACC NR: AP6029918 (A) 22

AUTHORS: Mironov, Yu. V.; Kamenskiy, I. V.; Korshak, V. V.; Glasko, S. A.

ORG: none

TITLE: A method for hardening unsaturated polyester resins, Class 39, No. 184442

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 80

TOPIC TAGS: polyester, resin, copolymer, polyester plastic

ABSTRACT: This Author Certificate presents a method for hardening unsaturated polyester resins by copolymerizing them with cross-linking agents in the presence of an oxidizing-reducing system. To increase the resistance to deformation and the mechanical strength of the hardened polyesters at high temperatures, poly-functional furane compounds (such as furfurylacrylate) are used as cross-linking agents.

SUB CODE: 0711/ SUBM DATE: 21Apr65

Card 1/1

UDC: 678.674.028.294

L 10071-67 EWP(m)/EWP(j) IJP(c) RM SOURCE CODE: UR/0413/66/000/015/0089/0039
ACC NR: AP6029923 (A) 37

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Valetskiy, P. M.; Salazkin, S. N.;
Mironov, Yu. V.

ORG: none

TITLE: Method for obtaining polyesters, Class 39, No. 184447

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 89

TOPIC TAGS: polyester plastic, polyglycol compound, polymer cross linking, polymer, glycol, oligomer

ABSTRACT: This Author Certificate presents a method for obtaining polyesters after the method described in Author Certificate No. 140986. To prevent a premature cross-linking of the polymer and to increase the solubility and fusibility of the latter, the process is carried out in two stages. The first stage consists of the interaction between the chloroanhydrides of dicarboxylic acids and dihydroxy phenols; the second stage is of the reaction of the oligomers, obtained in the first stage, with aromatic (or cycloaliphatic) glycols.

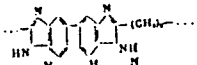
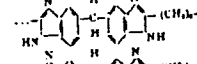

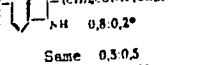
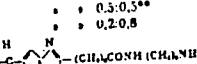
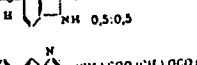
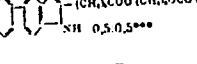
SUB CODE: 0711/ SUBM DATE: 10Jan64

Card 1/1

UDC: 678.673

ACC NR: AP6015043

Table 1. Thermal Stability of Some Polybenzimidazoles with Polymethylene Chains

Repeat Unit and Molar Ratio	Losses in Weight, % (in nitrogen stream)					Temperature at the start of decomposition, °C	Temperature of a sharp decrease in weight, °C
	Up to 350°	Up to 400°	Up to 450°	Up to 500°	Up to 550°		
 (CH ₂) _n	—	—	—	10,6	32,8	460	480
 (CH ₂) _n	9,1	9,4	9,7	33,3	56,3	460	470
 (CH ₂) _n	—	—	—	29,4	55,0	460	480
 (CH ₂) _n	6,4	7,3	7,7	32,9	50,2	440	460
 (CH ₂) _n 0,8:0,2*	4,1	4,9	10,6	49,1	61,3	430-440	460
Same 0,3:0,5	6,0	6,6	16,6	45,7	56,4	430-440	460
••• 0,3:0,5**	10,5	13,8	23,7	92,0	95,2	320	350
••• 0,2:0,8	11,9	15,9	27,8	97,5	—	320	350
 (CH ₂) _n 0,5:0,5	—	—	—	—	—	—	—
 (CH ₂) _n 0,5:0,5***	4,1	8,1	12,2	—	—	340	400

*Molar ratio of the initial components: tetraamine: diamine
 **Losses in weight determined in air
 ***Molar ratio of the initial components: tetraamine: diol

Card 2/6

ACC NR: AP6015043

Table 2. Thermal Stability of Aromatic Polybenzimidazoles and Polybenzimidazoles Containing Heteroatoms

Repeat Unit	Losses in Weight, % (in dry stream of nitrogen)			Temperature of the start of decomposition, °C	Temperature of a sharp decrease in weight, °C
	Up to 500°	Up to 550°	Up to 600°		
	3,4	7,9	15,4	~500	530
	4,8*	6,7*	23,6*	~500	530
	5,2*	15,4*	31,3*	~490	520
	5,4	7,5	10,2	~474	520
	3,4	7,2	18,2	~500	510
	27,5	39,8	47,8	~485	500
	2,6	7,2	12,8	~450	550

*Losses in weight determined in air

Card 3/6

ACC NR: AP6015043

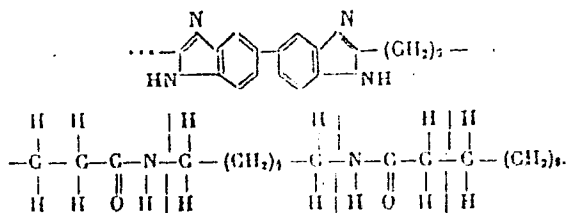
The thermal stability of the above polymers was determined in a nitrogen stream, or, in some cases, in air by using the thermogravimetric method. The tables indicate that the fully aromatic polybenzimidazoles are, in general, more thermally stable than polybenzimidazoles with aliphatic chains. Mixed polybenzimidazoles have an intermediate stability. The $-CH_2-$ bridging group causes a certain rigidity of the polymer structure and, as expected, increases the decomposition temperatures to the $490-500^\circ C$ range. The introduction of an oxygen atom between two phenylene groups, as, e. g., in the poly-2,2'-(p-diphenyleneoxide)-5,5'-dibenzimidazole, brings no improvement and, possibly, even a slight decline in the thermal stability. However, the loss in weight at $600^\circ C$ seems to be somewhat lower than in the oxygen-free polymer.

Bridging of phenylene groups with a phosphono group, e. g., $CH_3P(=O)-$, resulted in an increase of the losses at all testing temperatures, i. e., 500 , 550 , and $600^\circ C$, a decrease in the decomposition temperatures, but imparts incombustibility to the polymer. On heating, volatile products may originate from organic radicals at the P atom. The introduction of boron into the heterocyclic part of the benzimidazole group as, e. g., in a CH_2- bridged polybenzborimidazoline, results in a thermal stability comparable with that of fully aromatic polybenzimidazoles.

Card 4/6

ACC NR: AP6015043

Mixed polyamidobenzimidazoles and polyesterobenzimidazoles (see Table I) have a lower thermal stability than fully aromatic homopolybenzimidazoles, but are more resistant than the corresponding polyamides or polyesters. The decomposition of the polyamidobenzimidazoles probably takes place at the bonds indicated by the broken lines:

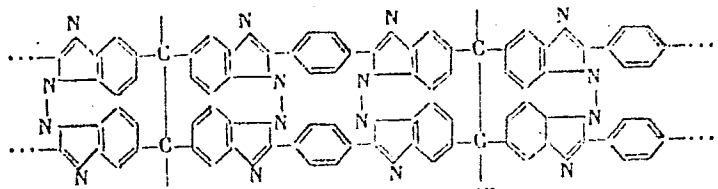


Heating of polybenzimidazoles to 400—320° C at 0.001 mm Hg produces insoluble substances, which can be explained as the formation of three-dimensional network structures by virtue of crosslinking of CH₂ or NH groups,

Card 5/6

ACC NR: AP6015043

accompanied by the evolution of H_2 . In the first stages of the decomposition the process can be represented as:



The rigidity of the polymers is increased, which results in an increase in thermal stability. Further, a rupture of chains takes place at a deeper decomposition. Orig. art. has: 3 figures and 2 tables. [FSB: v. 2, no. 10]

SUB CODE: 07, 20 / SUBM DATE: 17Apr64 / ORIG REF: 007 / OTH REF: 006

Card 6/6

L 01043-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6019543

(A)

SOURCE CODE: UR/0190/66/008/006/1080/1084
49
39
BAUTHOR: Korshak, V. V.; Vinogradova, S. V.; Kul'chitskiy, V. I.ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR); Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Copolymers of the unsaturated polyarylates containing allyl side chains with vinyl- and allyl-type monomers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1080-1084

TOPIC TAGS: copolymer, solid mechanical property, polyaryl plastic, synthetic material, polymer structure

ABSTRACT: Copolymerization of polyarylates based on isophthalic acid and containing allyl side chains with diallylphthalate, diallylterephthalate, diallylisophthalate, 2-allylphenylmethacrylate, allylmethacrylate, methylmethacrylate, ethylglycol dimethacrylate, bis-ethyleneglicolphthate methacrylate, and styrene was studied. The object of the work was to fill the gap in the pertinent literature. The structures of the copolymers were determined by IR-spectroscopy and elementary analysis. Copolymerization was carried out either in sealed ampoules or in open dishes, using either benzoyl peroxides or a mixture of benzoyl peroxide with tertiary butyl peroxide as ini-

UDC: 66.095.26+678.13+678.674+678.74

Card 1/2

I. 01013-67

ACC NR: AP6019543

tiators. The weight ratio of polyarylate to monomer was 1:1 and 1:2. In the case of polymerization with allylic monomers, the reaction mixtures were heated for 3 hours consecutively at 60°, 80°, 120° and 140°C. In the case of polymerization with vinylic monomers, the reaction mixtures were heated for 3 hours consecutively at 60°, 80°, and 90°C. For copolymers prepared in sealed ampoules, the weight loss during aging at 300°C was determined. Specific impact viscosity, specific strength at static bending, and Brinell hardness for copolymers prepared in open dishes in air were determined. Solubility in chloroform, diallylphthalate, methylmethacrylate, and 2-allylphenol were determined for all copolymers. Of all synthesized copolymers, those based on diallylphthalate and diallylisophthalate were found to have superior thermomechanical properties. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 07/

SUBM DATE: 04Jun65/

ORIG REF: 006

awm

Card 2/2

L 01040-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6019546

SOURCE CODE: UR/0190/66/008/006/1109/1112

AUTHOR: Slonimskiy, G. L.; Askadskiy, A. A.; Korshak, V. V.; Vinogradova, S. V.; Gribova, I. A.; Chumayevskaya, A. N.; Krasnov, A. P.; Moldabayeva, M. K. 43 B

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Investigation of the relaxation properties of filled polyarylates¹⁵

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1109-1112

TOPIC TAGS: solid mechanical property, polymer rheology, polyaryl plastic, synthetic material, POLYARYLATE, FILLER

ABSTRACT: Relaxation properties of commercial F-1¹⁵ polyarylate filled¹⁵ with copper powder (0-80 wt %) were examined in the 140°-260°C temperature range and in the 50-600 kg/cm² load range. The object of the study was to fill the gap in the pertinent literature. The temperature dependence of the relaxation time for F-1 polyarylates with various copper contents is graphed. It was found that in up to 40 wt % copper, the overall activation energy of the relaxation of the copper filled F-1 polyarylate declines (in comparison to the unfilled F-1 polyarylate) with increasing copper content. For the 40-80 wt % copper range, the overall activation energy of relaxation increases with increasing copper content. Changes in the activation energy of relaxation as a

UDC: 678.01:53+678.674

Card 1/2

awm

Card 2/2

L 00829-67 EWT(m)/EWP(j)/T IJP(c) MW/JAJ/RM

ACC NR: AP6027769 (A) SOURCE CODE: UR/0190/66/008/008/1365/1367

AUTHOR: Korshak, V. V.; Mozgova, K. K.; Yegorova, Yu. V.; Gumar-galiyeva, K. Z.; Belavtseva, Ye. M.

ORG: Institute of Organcelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

38
37
B

TITLE: Electron-microscope investigation of pemosores

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 8, 1966, 1365-1367

TOPIC TAGS: monomer, graft copolymer, pemosore

ABSTRACT: The structure of multigraft copolymer pemosores was studied. The analysis of grafted films of polyethyleneterephtalate and poly-ε-caproamide with different vinyl monomers was done using carbon-platinum replicas in the UEMV-1000 electron microscope. The graft changes the morphology of the surface structure considerably, whereupon the changes grow with the increase of quantity of the grafted monomer. A difference in the character of grafting was also found in the case of polyethylene-terephtalate and poly-ε-caproamide with different grafted monomers.

Card 1/2

UDC: 678.01:53

L 00829-67

ACC NR: AP6027769

The author thanks D. Ya. Tsvankin for taking x-ray photographs of pemosor samples. Orig. art. has: 8 figures. [Based on authors' abstract] [NT]

SUB CODE: 07/ SUBM DATE: 30Jun65/ ORIG REF: 002/ OTH REF: 001

Card 2/2 hs

L 01265-67 EWP(m)/EWP(j)/T IJF(c) WY/RM

ACC NR: AP6003493 (A) SOURCE CODE: UR/0020/66/166/001/0118/0121

AUTHOR: Lokshin, B. V.; Mozgova, K. K.; Korshak, V. V. (Corresponding member AN SSSR);
Yegorova, Yu. V. 51
B

ORG: Institute of Elementoorganic Compounds, AN SSSR (Institut elementoorganicheskikh
soyedineniy AN SSSR)

TITLE: Graft copolymers. Mechanism of grafting polyethyleneterephthalate (Lavsan) B

SOURCE: AN SSSR. Doklady, v. 166, no. 1, 1966, 118-121

TOPIC TAGS: graft copolymer, thermal decomposition, *polyethylene terephthalate*

ABSTRACT: The mechanism of grafting of polymers is discussed. It is concluded that the thermal activation of the process of grafting of a Lavsan film is related to its thermooxidational destruction. Heating of a Lavsan film at 110C for 6 min caused the appearance of new infrared absorption bands at 670, 720, 810, 920, 1620, and 1840 cm⁻¹. These changes were due to the formation of hydroxyperoxide, anhydride, and vinyl groups in the process of the thermooxidational destruction. Orig. art. has: 2 fig.

SUB CODE: 07/ SUBM DATE: 20Apr65/ ORIG REF: 005/ OTH REF: 005

Card 1/1 awin

UDC: 541.64

L 45708-66 EWT(m)/EWP(j)/T IJP(c) RM
ACC NR: AR6026773 SOURCE CODE: UR/0081/66/000/008/S063/S063

AUTHOR: Solov'yova, L. K.; Kamenskiy, I. V.; Korshak, V. V.

TITLE: Determination of the influence of admixtures and heat treatment on the degree of curing and thermomechanical characteristics of a plastic prepared from epoxy polymers and a mineral filler

SOURCE: Ref. zh. Khimiya, Part II, Abs. 8S417

REF SOURCE: Tr. Mosk, khim-tekhnol. in-ta D. I. Mendeleeva, vyp. 48, 1965, 218-219

TOPIC TAGS: epoxy plastic, thermomechanical property, filler, plasticizer

ABSTRACT: The degree of curing (content of extractable substances), which characterizes the process and order of formation of three-dimensional structures of compositions based on an epoxy binder, was investigated by extracting with acetone in a Soxhlet extractor for 6 hr and studying the thermomechanical curves recorded with a Zhurkov instrument. Into the composition, based on (in parts by weight) 3 parts of ED-5 resin cured at 20° for 1.5-2 hr and 0.45 part of polyethylenepolyamines, were introduced 1 part of fiber glass, 1 part of asbestos and a plasticizer (PL), 0.15-0.6 dibutyl phthalate. The effect of heat treatment was studied by preheating in a thermostat (5 hr at 50°, 10 hr at -50°, and 6 hr at -120°). It was found that additional heat treatment of the samples sharply lowers the content of extractable substances (e. g., in the sample without PL it dropped from 5.4 to 2.3%) and creates a compact

Card 1/2

upc

L 45709-66

ACC NR: AR6026773

structure, which is manifested in a decrease of the initial deformation and a rise of the temperature at which it starts. The presence of PL in the compositions insures a uniform distribution of the components in the mixture and increases the amount of extract. A rise of the PL content increases the deformation and lowers the temperature of the start of its increase. Further heating of the samples (6 hr at 200°) does not affect the content of extractable substances or the magnitude of deformation. L. Kotlyarevskaya. [Translation of abstract]

SUB CODE: 07

Card 2/2 ULR

L 45573-66 EWT(m)

ACC NR: AP6027002

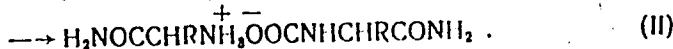
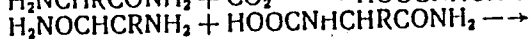
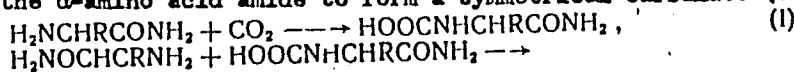
(A)

SOURCE CODE: UR/0291/66/000/002/0031/0034

AUTHOR: Korshak, V. V.; Rogozhin, S. V.; Kayumov, R. D. 26
BORG: Institute of Organometallic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)TITLE: Polycondensation of carbamates of α -amino acid amidesSOURCE: Uzbekskiy khimicheskiy zhurnal, no. 2, 1966, 31-34

TOPIC TAGS: polycondensation, carbamic acid, amide, amino acid

ABSTRACT: Carbamates of glycyl-, d, L-alanyl-d, L-valyl-d, L-leucyl- and d, L-nor-leucyl amide were synthesized, and their polycondensation in the melt was studied. It is thought that in the first stage of the reaction of carbon dioxide with the α -amino acid amides an N-carboxyamino acid amide (I) is formed which then reacts with another molecule of the α -amino acid amide to form a symmetrical carbamate (II):



Since the reaction is reversible, when the carbamate alone or its mixture with the α -amino acid amide is heated, substances of type (I) which may catalyze the transamidation reaction may appear in the reaction mixture. Furthermore, during the polycon-

Card 1/2

L 45573-66
ACC NR: AP6027002

0

condensation of carbamates, a part of the amine groups may be present in the combined state; as a result, the concentration of free amine groups will be lower than that of the amide groups during the entire process. The polycondensation of α -amino acid amides and their carbamates shows that few cyclic dimers are formed from the carbamates, while the yield and average molecular weight of the polymeric products increase. The reaction stops relatively early (for both the carbamates and α -amino acid amides) because the melting points of the products are above their decomposition temperatures. It is shown that the polycondensation of carbamates of α -amino acid amides in the melt can produce polypeptides. Orig. art. has: 2 tables.

SUB CODE: 07/ SUBM DATE: 10Oct65/ ORIG REF: 001/ OTH REF: 007

Card 2/2 *LC*

L 47003-66 ENT(m)/EWP(j)/I IJP(c) WW/RM SOURCE CODE: UR/0191/66/000/008/0056/0058
ACC NR: AP6027283 (A)

AUTHOR: Korshak, V. V.; Slonimskiy, G. L.; Vinogradova, S. V.; Gribova, I. A.; 48
Askadskiy, A. A.; Krasnov, A. P.; Chumayevskaya, A. N.; Moldabayeva, M. K. B

ORG: none

TITLE: Effect of fillers on the properties of compositions based on heat-resistant polymers 15

SOURCE: Plasticheskiye massy, no. 8, 1966, 56-58

TOPIC TAGS: filler, polymer physical property, impact strength, hardness

ABSTRACT: The effect of fillers (powdered copper and aluminum, talc, quartz, graphite and boron nitride added in amounts of 20, 40, 60, 80 and 90 wt. %) on the specific impact strength and hardness of compositions based on F-1 polyarylate (prepared from phenolphthalein and isophthalic acid) and FF-40 phenolphthalein-formaldehyde resin was studied. The compositions based on F-1 showed a decrease in impact strength with increasing content of all fillers, probably because the filler particles hinder the development of fibrillar superstructures and make the polymer structure inhomogeneous, thus impairing its properties. The specific impact strength of specimens based on FF-40 was higher for all fillers than that of the original specimens, the metal powders having a greater effect than the mineral fillers. The hardness curves for F-1 showed maxima in the case of the metal powders, quartz, and boron nitride; the existence of

UDC: 678.6.01:536.495]:678.046.2/.3

Card 1/2

L 47008.66

ACC NR: AP6027283

these maxima is explained. Talc did not increase the hardness of F-1 in any amount. The hardness of FF-40 was greater for all fillers than that of F-1 specimens. Orig. art. has: 5 figures.

SUB CODE: 11, ¹⁰ / ORIG REF: 002

Card 2/2 vmb

I. 14258-66 FWT(m)/FMP(1)/T TJP(c) WV/RM

ACC NR: AP6013280 (A) SOURCE CODE: UR/0413/66/000/008/0079/0079

INVENTOR: Korshak, V. V. ; Krongauz, Ye. S. ; Rusanov, A. L.

15
B

ORG: none

TITLE: Preparation of polyamides.^b Class 39, No. 180796^b

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 79

TOPIC TAGS: polyamide, acid chloride, amino group, heat resistant polyamide

ABSTRACT: This Author Certificate introduces a method for preparing polyamides by polycondensation of dicarboxylic acid chloride a compound containing an amino group. To obtain heat-resistant polyamides, aminobenzoyl hydrazide is suggested as the compound containing the amino group. 1 [LD]

SUB CODE: 11/ SUBM DATE: 25Jan65/

Card 1/1 MT

UDC: 678.675' 4' 0

L 45225-66 EWT(m)/EWP(j)/T IJP(c) WW/RM
ACC NR: AP6027771 (A) SOURCE CODE: UR/0190/66/008/008/1383/1385

AUTHOR: Korshak, V. V.; Bekasova, N. I.

41
B

ORG: Institute of Organoelemental Compounds AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Heat resistant polymer from B-trimethyl-N-triphenylborazole

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 8, 1966, 1383-1385

TOPIC TAGS: heat resistant polymer, polymerization

ABSTRACT: An ampul containing 1.5 g of B-trimethyl-N-triphenylborazole was evacuated and filled with nitrogen, soldered under vacuum and heated at 450-480C for 25 hr. After cooling with dry ice the ampul was opened. The dark and brilliant polymer obtained (1.26 g) was pulverized and boiled in dioxane in order to remove traces of borazole. The polymer does not dissolve in alcohols, ethers, or aromatic and aliphatic hydrocarbons. Its decomposition temperature is above 500C. [DW]

SUB CODE: 07/ SUBM DATE: 02Jul65/ OTH REF: 006/

Card 1/1 /C

UDC: 678.86

Card 1/1 nat

UDC: 678.673.025.4

1956-07 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6031950

SOURCE CODE: UR/0251/66/043/003/0593/0598

AUTHOR: Papava, G. Sh.; Agladze, L. D.; Tsiskarishvili, P. D.; Vinogradova, S. V.; ³⁴
Korshak, V. V. (Corresponding member AN SSSR) ₃

ORG: Institute of Physical and Organic Chemistry im. P. G. Melikishvili Academy of Sciences GruzSSR (Institut fizicheskoy i organicheskoy khimii, Akademii nauk GruzSSR);
Institute of Hetero-Organic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy, Akademiya nauk SSSR)

TITLE: Mixed polyaryl ester-penton block-copolymers

SOURCE: AN GruzSSR. Soobshcheniya, v. 43, no. 3, 1966, 593-598

TOPIC TAGS: block copolymer, polyaryl ester, penton, phenolphthalein, bisphenol A, isophthaloyl chloride, terephthaloyl chloride, *polyaryl resin*

ABSTRACT: Several mixed polyaryl ester¹-penton⁵ block-copolymers¹ were prepared by polycondensation of various amounts of penton, phenolphthalein and for bisphenol-A, and terephthaloyl and/or isophthaloyl chloride. The copolymers yielded strong films from chloroform solutions. The effects of individual components on the properties of the copolymers were studied. The results, given in the form of tables, indicate that: 1) introduction of up to 10% penton does not substantially lower the softening temperature of polyaryl esters, however, larger amounts of penton lower this temperature; 2) for equal penton content, the softening temperature of the copolymers is affected by the structure of both the bisphenol and the carboxylic acid; 3) intro-

Card 1/2

ACC NR: AN6006486

Monograph

UR/

Korshak, Vasilii Vladimirovich

Progress of polymer chemistry (Progress polimernoy khimii) Moscow, Izd-vo "Nauka", 85. 0411 p. illus., biblio., indices. (At head of title: Akademiya nauk SSSR. Institut elementoorganicheskikh soyedineniy). Errata slip inserted. 5,500 copies printed.

TOPIC TERMS: polymer^{chemistry}, macromolecular chemistry, polymer structure, heterochain polymer, inorganic polymer, polymerization, chain polymer
~~polycondensation~~

PURPOSE AND COVERAGE: This book is meant for scientists interested in macromolecular chemistry and represents a review of progress achieved during the period from 1833 to 1965. The text is based on 2408 world-wide references relating primarily to the synthesis of macromolecular compounds as the most representative phase of polymer chemistry. In view of the abundance of sources in polymer chemistry, which grow at a rate of over 20,000 items yearly, the author aimed at a selection which would reflect the general progress in polymer chemistry, but would not be a comprehensive review of the entire field. Only those modern macromolecular compounds are included which are important in the manufacture of polymeric

Card 1/2

ACC NR: APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R00082493000

industrial products, and those which are of interest for the development of theories and methods of synthesis.

TABLE OF CONTENTS [abridged]:

Preface --	3
Introduction --	5
References --	21
Ch. 1. Methods for the synthesis of macromolecular compounds --	24
References --	157
Ch. 2. New carbon-chain polymers --	176
References --	212
Ch. 3. New heterochain polymers --	220
References --	263
Ch. 4. New heteroorganic macromolecular compounds --	270
References --	312
Ch. 5. Inorganic macromolecular compounds --	320
References --	364
Author Index --	372
Subject Index --	395

SUB CODE: 07, 11/
OTH REF: 318/

SUBM DATE: 12Oct65/

ORIG REF: 097/

Card 2/2

TOPCHIYEV, A.V., akademik; KORSHAK, Yu.V.; DAVYDOV, B.E.; KRENTSEL', B.A.

Polyazines, a new class of polymers with conjugate bonds. Dokl.
AN SSSR 147 no.3:645-648 N '62. (MIRA 15:12)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Azines) (Polymers) (Conjugation (Chemistry))

DAVIDOV, B.E.; DRABKIN, I.A.; KCR SHAK, 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)

L 8777-65 EWT(l)/EPA(s)-2/ENG(k)/EWT(m)/EPF(c)/EWP(j)/T Pz-6/Pe-4/Pr-4/ 47/PM
Pt-10 IJH(c)/RPL/RAEM(t)/E3D(dp)/ESD(t)/AFTI/ASD(a)-5

S/0062/64/000/009/1703/1705

ACCESSION NR: AP4045801

AUTHOR: Gureshshvili, 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 interrupted by the oxygen or sulfur atoms in the monomers and the polymers. Measurements of the temperature dependence of conductivity were carried out for

Card 1/2

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ACCESSION NR: AP4045801

2

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

SUB CODE: SS, MT

NO REF SOV: 003

OTHER: 002

Card 2/2

S/0020/64/157/003/0611/0614

ACCESSION NR: AP4042795

AUTHOR: Davy*dov, B. E.; Korshak, Yu. V.; Krentsel', B. A.

TITLE: Hydrazinolysis — a new method for the study of the structure of nitrogen-containing polymers with conjugated bonds

SOURCE: AN SSSR. Doklady*, v. 157, no. 3, 1964, 611-614

TOPIC TAGS: polyconjugated system, C = N bond, C - C bond, hydrazinolysis, hydrazine hydrate, polymer structure, conjugated bond, polyazine, polyquinoline, polypyridine, paracyanogen, acrylonitrile, polymeric Schiff base

ABSTRACT: Study of the structure of polyconjugated systems with C = N and C - C bonds is difficult, owing to the impossibility of evaluating the C = N:C = C ratio from IR spectra and to the insolubility and infusibility of most compounds of the above systems. For these systems, study methods involving the breaking of polyconjugated bonds and subsequent identification of low-molecular products formed must be applied. Methods which permit a selective breaking of C = N bonds without affecting the C - C bonds in aliphatic and aromatic chains are of special interest. The reaction of "hydrazinolysis,"

Card 1/3

ACCESSION NR: AP4042795

proceeds more readily when the polymer is at least partially soluble in the reaction medium. It is concluded that the reaction of hydrazinolysis can be applied as a new method for establishing the structure of polyconjugated systems with C = N bonds.

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

SUBMITTED: 06Feb64

ATD PRESS: 3067

ENCL: 00

SUB CODE: GC, OG

NO REF SOV: 006

OTHER: 003

Card 3/3

GODZHELLO, M.; KORSHAK, Z.; NIKITINA, N.

Enant fibers. Pozh.delo 9 no.2:9-10 F '63.
(Inflammable materials--Law and legislation)

(MIRA 16:3)
(Nylon)

KORSHAK, Z-V.

GODZHELLO, Mikhail Georgiyevich; DEMIDOV, Petr Georgiyevich; DZHALALOV, Yervand Markosovich; KORSHAK, Zinaida Vladimirovna; RYABOV, Igor' Vasil'yevich; TARASOV-AGALAKOV, N.A., redaktor; VINOKUROVA, Ye.B., redaktor; SHOROV, D.M., tekhnicheskii redaktor

[Readily inflammable and combustible liquids; manual] Legkovosplame-
niaiushchiesia i goriuchie zhidkosti; spravochnik. Pod obshchei red.
N.A.Tarasova-Agalakova, Moskva, Izd-vo Ministerstva kommunal'nogo
khoziaistva RSFSR, 1956. 110 p. (MLRA 9:11)
(Liquid fuels)

L1233

S/194/62/000/007/117/160
D271/D308

AUTHORS: Turko, M.N., and Korshakevich, I.I.

TITLE: Some results of probe investigations of AC arcs

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7zh374 (In collection: Nekotoryye vopr. emission. i molekulyarn. spektroskopii Krasnoyarsk, 1960, 34 - 41)

TEXT: Some properties of AC arcs in air, at atmospheric pressure, were studied using a rotating probe. Langmuir's probe method, when applied to discharges at atmospheric pressure, only permits measurement of plasma potential (by the inflection point on the logarithmic current graph). The probe was made of nichrome wire, 0.12 mm diameter, rotating at 3000 r.p.m. The wire intersected the arc beam at a given instant of time. All measurements were referred to one arbitrarily chosen phase. Potential distribution along the arc column was determined by this method. Both probe and spectral measurements indicate the existence of a positive space charge at both electrodes, i.e. an increase of ion concentration. The value of
Card 1/2

Inst. Physics Siberian Dept AS USSR

Some results of probe investigations... S/194/62/000/007/117/160
D271/D308

cathode voltage drop (18 V) agrees with that for a DC arc. Anode voltage drop (17 V) requires an additional explanation. Influence of current intensity (up to 20 A) and of electrode material on the diameters of electron and ion beams was also studied; for this purpose, a potential equal to that of the anode or cathode was applied to the rotating probe. In Pt, Pd and Cu the diameter of the electron cloud is much greater than the ion beam diameter, whereas in Al and Zn difference in the diameters is small. This result can be explained by different values of electron diffusion in the radial direction which depends both on the radial distribution of plasma potential and on the concentration of charged particles in the arc column. 11 references. [Abstracter's note: Complete translation.]

Card 2/2

L 12075-66 EWT(1)/EWT(m)/ETC(F)/ERG(m)/T/EWA(m)-2 DS

ACC NR: AT6001416

SOURCE CODE: UR/3180/64/009/000/0287/0290

44 55

44 55

AUTHOR: Korshakevich, I.I.; Spirov, V.V.

ORG: None

TITLE: The dynamics of low-ampere arc discharges between dissimilar electrodes

SOURCE: AN SSSR. Komissiya po nauchnoy fotografii i kinematografii. Uspokhi nauchnoy fotografii, v. 9, 1964. Vysokoskorostnaya fotografiya i kinematografiya (High-speed photography and cinematography), 287-290 and insert facing page 281

TOPIC TAGS: high speed photography, electric discharge, arc discharge





ABSTRACT: The present study investigates the influence of electrode material on the development of a luminous discharge cloud, the behavior of cathode and anode spots, and the magnitude of the inraelectrode voltage drop during a single flare. The electrode arrangements and materials are shown in Table 1. The two types of discharges originate from electrodes the boiling temperatures of which are above 2000C and heat of evaporation above 60 kcal/g·atom (I) and from electrodes the respective quantities of which are lower (II). The photography frequency of the SKS-1 motion picture camera, synchronized with a GEU-1 arc generator, was 4500 - 5500 sec⁻¹. Photographs show the shapes and positions of the cathode and anode spots, the influence of the electrode shape on the structure of the luminous cloud, and the time base of a single flare and voltage pulse. A detailed discussion of the results is given. Orig. art. has: 4 figures and 2 tables.

Card 1/2

L 12075-66

ACC NR: AT6001416

Table 1

Type of Discharge	Shape and material of electrodes			
				
I	Al-Al, Sn-Sn, Ag-Ag, Ni-Ni, Cu-Cu, Fe-Fe, Co-Co, W-W, Pd-Pd, Pt-Pt, Au-Au, Rh-Rh		Sn-Sn	
II	Bi-Bi, Sb-Sb, Cd-Cd, Zn-Zn C-C		Pb-Pb	Pb-Pb

SUB CODE: 14, 20 / SUBM DATE: none

BC
Card 2/2

L 15346.66 EWT(1)/EWP(e)/EWT(m)/ETC(F)/EPF(n)-2/ENG(m)/EWP(v)/T/EAP(t)/EWP(k)/EWP(b)
ACC NR: AP6002013 IJP(e) JD/WW/HM/ SOURCE CODE: UR/0288/65/000/003/0063/0070

AUTHOR: Turko, M. N.; Korshakevich, I. I. JG/AT/WH

ORG: Institute of Physics, Siberian Department, AN SSSR, Krasnoyarsk (Institut fizi-
ki Sibirskogo otdeleniya AN SSSR)

TITLE: Some characteristics of vaporization of a material from the surface of a
probe in an arc

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no.
3, 1965, 63-70

TOPIC TAGS: plasma physics, plasma discharge, vaporization, phase transition, pho-
tometric analysis, spectrographic analysis, PLASMA ARC, SPECTRAL LINE

ABSTRACT: Atoms are introduced into the plasma of an arc by vaporizing a material
from the surface of a probe in an attempt to find methods for converting atoms from
the solid to the gaseous phase while controlling the quantity of evaporated material
without changing the conditions for excitation of the atoms and in this way to de-
termine the basic characteristics of the vaporization process. A half-wave a-c arc

Card 1/3

UDC: 537.523.5

L 15346-66

ACC NR: AP6002013

was generated with a current amplitude of 7 a in 5 msec intervals with a prf of 12.5 cps. The copper electrodes were held 3 mm apart. The spectra were photographed on high speed film and the intensity of the spectral lines was measured by ordinary photometric methods. The probe was a wire 0.2-0.4 mm in diameter. Two types of probes were used: cylindrical probes which intersected the arc throughout its entire cross section, and point probes in which the working surface was an area of approximately 0.3 mm², the remaining portion of the wire being protected by an insulating covering of molybdenum glass. The material to be evaporated was either coated on the surface of the probe by electrolysis (iron, cadmium, tin and zinc) or was the material of the probe itself (nichrome, platinum, rhodium, palladium). A schematic diagram of the electrical circuit for the experimental setup is given. The evaporation of the material from the surface of the probe was determined by the potential of the probe with respect to the electrode. Curves are given showing the intensity of spectral lines for various substances as a function of probe current density. These curves are parabolic for the lines of nickel, rhodium, platinum and palladium with a slight distortion at high current densities. The relationship is considerably less pronounced for lines of iron, cadmium and tin. A formula is derived for the energy liberated at the probe by the stream of electrons in terms of the time for the current pulse. Calculations show that this energy varies from 0.7

Card 2/3

L 15346-66

ACC NR: AP6002013

to 95 joules/cm². For most of the materials studied, this energy was 4.6±0.7 joules/cm² at a capacitance of 58 µf and a voltage of 50 v. The intensity of the lines either increases at a slower rate than the energy (Cd, Sn, Fe, Ni), or surpasses the energy (Td, Rh, Pt). The proposed method for controlled vaporization of a material from the surface of a probe expands the possibilities for studying processes which take place on electrodes in an arc plasma and may be used in theory for other forms of discharges. Orig. art. has: 5 figures, 1 table, 7 formulas.

SUB CODE: 20/ SUBM DATE: 25Feb63/ ORIG REF: 005/ OTH REF: 005

OC
Card 3/3