ROGOVIN, Z.A.

Eighth Mendeleev Congress. Khim. volok. no.2:82-83 '59.
(MIRA 12:9)

(Chemistry, Physical and theoretical--Congresses)
(Polymers--Congresses)

SOV/156-59-2-38/48

5(3),15(8)
AUTHORS: Rogovin, Z. A., Pogosov, Yu. L.

TITLE: Investigation of the Composition and Structure of the Products of the Hydrolysis of the Cellulose and of the Polycondensation of the Glucose Which Form Under the Influence of Concentrated HF (Issledovaniye sostava i stroyeniya produktov gidroliza tsellyulozy i polikondensatsii glyukozy, obrazuyushchikhsya pri deystvii kontsentrirovannoy HF)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 368-371 (USSR)

ABSTRACT: This is the 79th communication from the series "Investigation of the structure and properties of the cellulose and its esters" ("Issledovaniye stroyeniya i svoystv tsellyulozy i ikh efirov"). Cotton cellulose was hydrolyzed with concentrated hydrofluorine acid, until a state of equilibrium was obtained. The single fractional distillations were separated with ethanole, and their average degree of polymerization, and also the optical torsion-ability in water (Table 1), were determined with the help of the iodine- and cupro-value. The high optical torsion-ability points to predominant α-glucoside-bonds. The low-molecular polysaccharides which are formed during the hydrolysis of

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Investigation of the Composition and Structure of the Products of the Hydrolysis of the Cellulose and of the Polycondensation of the Glucose Which Form Under the Influence of Concentrated HF

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the cellulose through hydrofluoride, are therefore already the products of a secondary polycondensation-reaction of the glucose. The fraction of the byoses was tritylized, the content of trityle groups in the tritylester was determined by its decomposition with concentrated sulphuric acid and by the determination of the triphenylcarbinole(Table2). The results indicated that 1.6- α - glucoside bonds are predominantly contained in the byoses-fraction. This is explained by the higher reaction ability of the primary alcoholgroups. There are 2 tables and 5 references, 4 of which are Soviet.

PRESENTED BY: Kafedra iskustvennogo volokna Moskovskogo tekstil'nogo instituta (Chair for Synthetic Fibres Moscow Textile Institute)

SUBMITTED: January 12, 1959

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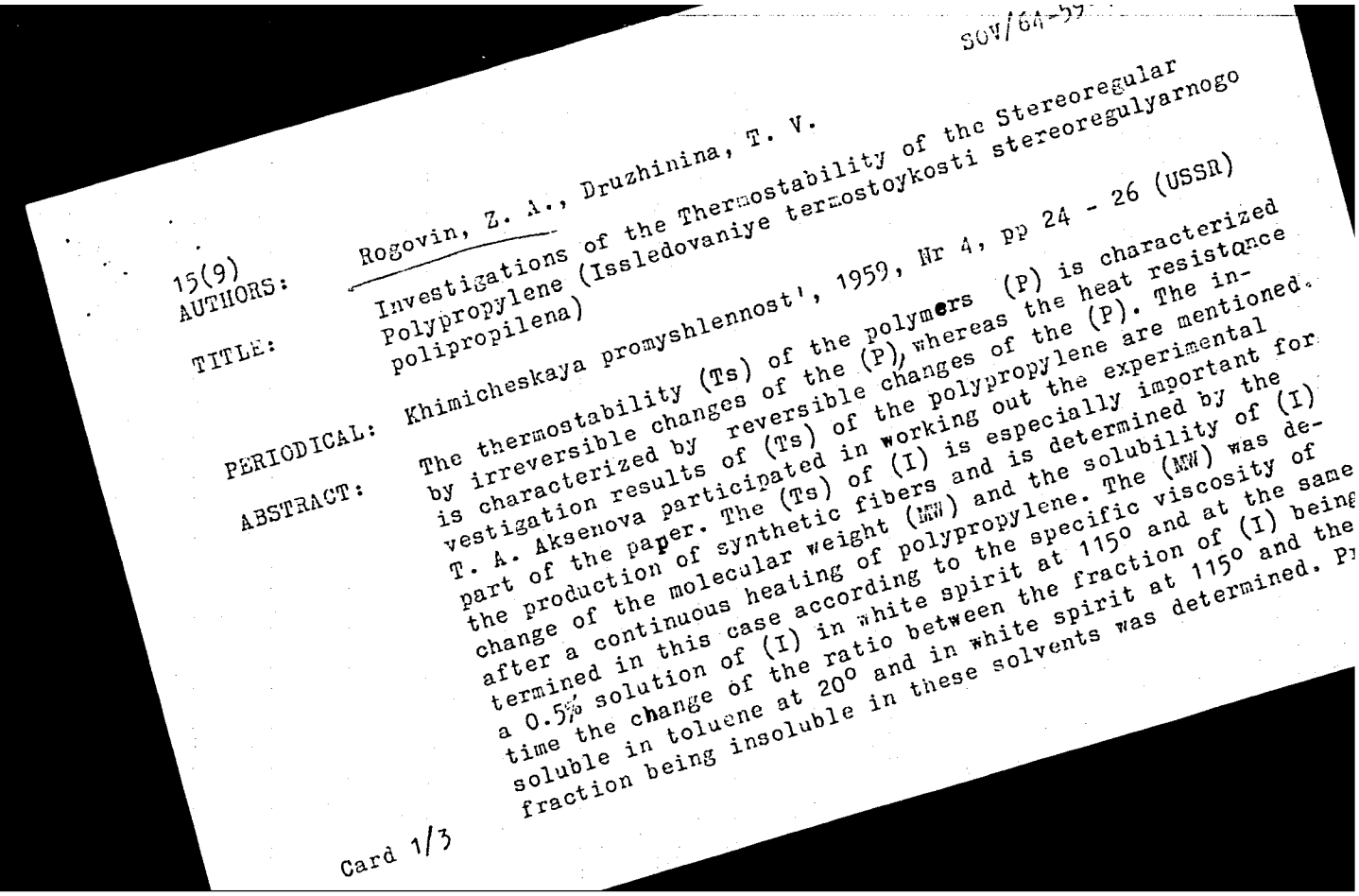

SOV/64-59-

15(9)
AUTHORS: Rogovin, Z. A., Druzhinina, T. V.

TITLE: Investigations of the Thermostability of the Stereoregular Polypropylene (Issledovaniye termostoykosti stereoregulyarnogo polipropilena)

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 4, pp 24 - 26 (USSR)

ABSTRACT: The thermostability (Ts) of the polymers (P) is characterized by irreversible changes of the (P), whereas the heat resistance is characterized by reversible changes of the (P). The investigation results of (Ts) of the polypropylene are mentioned. T. A. Aksenova participated in working out the experimental part of the paper. The (Ts) of (I) is especially important for the production of synthetic fibers and is determined by the change of the molecular weight (MW) and the solubility of (I) after a continuous heating of polypropylene. The (MW) was determined in this case according to the specific viscosity of a 0.5% solution of (I) in white spirit at 115° and at the same time the change of the ratio between the fraction of (I) being soluble in toluene at 20° and in white spirit at 115° and the fraction being insoluble in these solvents was determined. P

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SOV/64-59-4-6/27

Investigations of the Thermostability of the Stereo-regular Polypropylene

parations of stereoregular (I) were tested, which were obtained by polymerisation of (I) in the presence of mixed catalysts $Al(C_2H_5)_3 + TiCl_3$ or $Al(C_2H_5) + TiCl_4$. The data on the change of the specific viscosity and of the solubility of (I) after heating on air during 1-12 hours at different temperatures of from 130-180° are given (Table 1). The noticed increase of the amount of fraction being soluble in toluene with the temperature is said to be due to the decrease in the (MW) of (I) without a change of the phase state. As is the case also in the oxidation decomposition of rubber two processes take place parallely - the destruction of the macromolecule and a structuring of the (P) by the reaction of the formed macroradicals. These processes take place especially intensively in compounds containing a tertiary carbon atom with a CH_3-group (Ref 5).

The thermal treatment (TT) of (I) increases the total amount of the low-molecular soluble fractions (Table 2) so that up to 90 wt% of (I) can be transformed into these fractions by a repeated heating (3-4 times). The (TT) influences essentially more the (MW) of the crystalline stereoregular (I) than that of the amorphous fractions which may be noticed in the change of the

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ROGOVIN, Z., prof.

Important stage in the work of Soviet chemists. NTO no.5:10-12 My '59. (MIRA 12:8)

1.Zamestitel' predsedatelya Vsesoyuznogo khimicheskogo obshchestva im. D.I. Mendeleyeva.
(Chemical research)

ARKHANGEL'SKIY, D.N.; ROGOVIN, Z.A.; KONKIN, A.A.

Effect of the composition of the percipitation baths on the swelling of viscose fiber. Khim.volok. no.5:36-38 '59.
(MIRA 13:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (VNIIV) i Moskovskiy tekstil'nyy institut (MTI).
(Viscose) (Rayon)

SOKOLOVA, V.A.; ROGOVIN, Z.A.

Effect of the molecular weight and polydispersity of acetylcellulose on the conditions of forming and on the properties of acetate fiber. Khim.volok. no.5:45-47 '59. (MIRA 13:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (VNIIV) i Moskovskiy tekstil'nyy institut (MTI).
(Rayon) (Cellulose acetate)

POGOSOV, Yu.L.; ROGOVIN, Z.A.

Hydrolysis of cotton lint by concentrated hydrofluoric acid.
Uzb.khim.zhur. no.5:73-79 '59. (MIRA 13:2)

1. Institut khimii AN UzSSR i Moskovskiy tekstil'nyy institut.
(Cotton) (Hydrofluoric acid)

/57-5-6/17

AUTHORS: 15(4) Nechayeva, S. A., Rogovin, Z. A.

S/183/59/000/06/005/027
B004/B007

TITLE: Spinning of Polypropylene Fibers in the Thermoplastic State

PERIODICAL: Khimicheskiy volokna, 1959, Nr 6, pp 17-21 (USSR)

ABSTRACT: This is the 13. report from the series entitled "Investigations in the Field of the Production of New Types of Carboplast Fibers". No data are given in publications concerning the production of polypropylene-(PP)-fibers in USA and Italy. Because of the highly viscous melt of polypropylene and its difficult solubility in only few high-boiling hydrocarbons it can be spun only: 1) From concentrated solutions at temperatures of about 200°, 2) in a thermoplastic state. Procedure 1) is at present being successfully developed at the VNIIV (Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna - All-Union Scientific Research Institute for Synthetic Fibers). Its disadvantages are the easily inflammable solvents and the difficulties connected with their recuperation. The authors speak about their attempts at spinning polypropylene in a thermoplastic state. They constructed an experimental spinning machine, which consists of a worm-press, a dosing pump, a set

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of spinnerets, and a device for drawing and winding (Fig 1). The PP is rolled before being filled into the spinning machine 5 - 10 min at 150 - 160°. On this occasion, a decrease in molecular weight and a thermo-oxidative decay occurs (Tables 1, 2). The oxidative decay might be prevented by the addition of an antioxidant (tert.tributylphenol) or by heating in an inert medium (N, Ar). The rheological processes while the high-viscous PP is being pressed through the spinneret are in further need of investigation. PP viscosity may be decreased by plastifiers. Investigations were carried out of the respective effect produced by 1) the amorphous fraction of PP and 2) rubber like polymers such as polyisobutylene. The influence exerted by the amorphous fraction was investigated on two kinds of PP. One was produced by means of a catalyst $TiCl_4+Al(C_2H_5)_3$ at the Institut neftekhimicheskogo sinteza (Institute for Petroleum-chemical Synthesis) at the laboratory of B. A. Krentsel', the other by means of $TiCl_3+Al(C_2H_5)_3$ by V. S. Etlis and M. S. Minsker. With a 16 - 18% content of amorphous frac-

Spinning of Polypropylene Fibers in the Thermo-plastic State

S/183/59/000/05/005/027
B004/B007

tion PP becomes too fluid. The best results were obtained by means of a 5 - 10% amorphous fraction. The effect produced by an addition of 5 - 15% polyisobutylene is shown in tables 3 and 4. Spinning of PP requires considerable drawing, and spinnerets with a large opening (0.25 - 1.0 mm). The rate of thread formation is given according to the quantity of the added plastifier and according to the molecular weight of the PP as being 7 - 40 m/min. V. Varshavskiy took part in the experiments. There are 1 figure, 4 tables, and 6 references, 5 of which are Soviet.

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

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S/153/59/000/06/008/027
E004/E007

~~15(4)~~

AUTHORS: Rogovin, Z. A., Gushkova, Yu. D., Kraynov, A. P.

TITLE: The Production of Triacetate-fibers From Solutions of Triacetyl-cellulose in the Acetylating Mixture

PERIODICAL: Khimicheskiy volokna, 1959, Nr 6, pp 27-30 (USSR)

ABSTRACT: The spinning of triacetate fibers direct from the acetylating mixture would mean a considerable shortening and simplification of production. The conditions for the realization of this method are: 1) The production of a stable solution of triacetyl-cellulose (TAC) in the acetylating mixture. 2) Determination of the most suitable spinning method and of the composition of the spinning bath. 3) Development of a method for the regeneration of the solvent (this point is not dealt with by the authors). The stabilization of the TAC-solution is carried out successfully by the addition of salts from strong bases and weak acids (sodium acetate), so that the mineral acids ($HClO_4$; H_2SO_4), which are used as catalysts, are neutralized.

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The Production of Triacetate-fibers From Solutions of Triacetyl-cellulose in the Acetylating Mixture

S/185/59/040/06/008/027
B004/B007

Such neutralized solutions (produced at the Vladimirskiy khimicheskiy zavod (Vladimir Chemical Factory)) in the course of 100 - 150 days showed no change of the molecular weight of the TAC and their viscosity. The following composition was investigated as spin-solution: TAC 22%, methylene chloride 51%, acetic acid 24%, water 3%. Dry spinning requires hermetically closing of the spinning machines because of the acetic acid vapors formed. The authors point out that this has already been done in other countries during the spinning of polyacrylonitril-fibers from solutions in toxic dimethyl formamide. As, however, no data are available, only experiments with wet spinning were carried out. As methylene chloride is not soluble in water, water could not be used as precipitant. The authors investigated precipitation by means of acetylene gylcol. Table 1 shows the influence exerted by the composition of the coagulating bath upon the mechani-

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The Production of [illegible] From Solutions of [illegible] in the Acetylating Mixture

S/183, [illegible] B004/B007

[illegible] properties of the fiber. Too high a methylene chloride content ([illegible] than 6 - 7%) deteriorates the fiber. The temperature of the coagulating bath was varied within the [illegible] 35° (Table 2). At temperatures above 27° the [illegible] dull. A change of TAC concentration of [illegible] does not influence fiber properties. If the [illegible] the fiber in the coagulating bath is increased from [illegible], the strength of the fiber increases. As a result of the high viscosity of ethylene glycol this is, however, [illegible]. Spinning may be carried out at 20° only [illegible] of 2 - 3 m/min, and at 35° at a rate of [illegible] the use of a less viscous precipitant ([illegible]propyl alcohol) [illegible] a spinning rate of 15 m/min. In the experiments carried out, fibers with number 20 [illegible] 250 were obtained. [illegible] at obtaining fibers with [illegible] number [illegible] were not successful. There are 2 [illegible] and [illegible] of which are Soviet.

KONKIN, A.A.; ROGOVIN, Z.A.

Role of molecular interaction in the hydrolysis of polysaccharides in a heterogeneous medium. Vysokom.soed. 1 no.2:177-181 F '59. (MIRA 12:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Polysaccharides) (Hydrolysis)

GIL'MAN, I.S.; ROGOVIN, Z.A.

Osmometric determination of the molecular weight of polymers at elevated temperatures. Vysokom.soed. 1 no.4:619-622 Ap '59. (MIRA 12:9)

1. Moskovskiy tekstil'nyy institut.
(Polymers) (Molecular weights)

SUN'-TUN [Sun-T'ung]; DEREVITSKAYA, V.A.; ROGOVIN, Z.A.

Synthesis of new cellulose derivatives and other polysaccharides. Part 2: Synthesis of amino acid amides of alginic acid and carboxymethylcellulose via amino acids. Vysokom.soed. 1 no.8:1178-1181 Ag '59. (MIRA 13:2)

1. Moskovskiy tekstil'nyy institut.
(Alginic acid) (Cellulose) (Amides)

SUN' TUN; DERFVITSKAYA, V.A.; ROGOVIN, Z.A.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 3: Synthesis of a graft copolymer of carboxymethylcellulose and polyenanthamide. Vysokom.soed. 1 no.11:1625-1629 N 59. (MIRA 13:5)

1. Moskovskiy tekstil'nyy institut.
(Heptanamide) (Cellulose) (Polymers)

ROGOVIN, Z.A.; U ZHUN-ZHUY

Synthesis of new derivatives of cellulose and other polysaccharides. Part 4: Synthesis of graft copolymers of carboxymethylcellulose and polycaprolactam. Vysokom.soed. 1 no.11:1630-1633 N '59. (MIRA 13:5)

1. Moskovskiy tekstil'nyy institut.
(Cellulose) (Hexamethylenimine)

5(3) SOV/63-4-2-35/39

AUTHORS: Rogovin, Z.A., Vladimirova, T.V.

TITLE: The Synthesis of the Mixed Nitric Nitrophenyl Ester of Cellulose

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, pp 284-285 (USSR)

ABSTRACT: New derivatives of cellulose may be produced by utilizing the phenyl groups contained in the macromolecule of cellulose. The nitration of the cellulose phenyl ester is carried out by a mixture of nitric and phosphoric acid and phosphoric anhydride. The formed mixed ester dissolves in the nitration mixture. All free hydroxyl groups may be esterified by changing the esterification conditions. At relatively low temperatures only two nitro-groups may be introduced into the phenyl nucleus. The phenyl ester is resistant to diluted mineral acids at normal and raised temperatures and to 2 n-solution of NaOH at raised temperature.

Card 1/2 There is 1 table and 1 Soviet reference.

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The Synthesis of the Mixed Nitric Nitrophenyl Ester of Cellulose

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

SUBMITTED: October 6, 1958

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5(3)

SOV/63-4-2-37/39

AUTHORS: Rogovin, Z.A., Vladimirova, T.V.

TITLE: The Preparation of Phenyl Ester of Cellulose With a Higher Degree of Substitution

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, p 286 (USSR)

ABSTRACT: A higher degree of substitution is obtained by phenylation of not only the primary but also of the secondary alcohol groups. The phenyl-cellulose was tosylated by a solution of n-toluene-sulfo-chloride in pyridine which produced a mixed phenyl-tosyl ester. Additional phenyl-ation by a solution of sodium phenolate in phenol did not substitute all tosyl groups. It has been shown, however, that not only primary but also secondary hydroxyl groups may be phenylated. Ditosylcellulose dis-solves in pyridine, acetone, cyclohexanone, chloroform, etc.
There are 2 references, 1 of which is Soviet and 1 German.

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SOV/63-4-2-37/39

The Preparation of Phenyl Ester of Cellulose With a Higher Degree of Substitution

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

SUBMITTED: October 6, 1958

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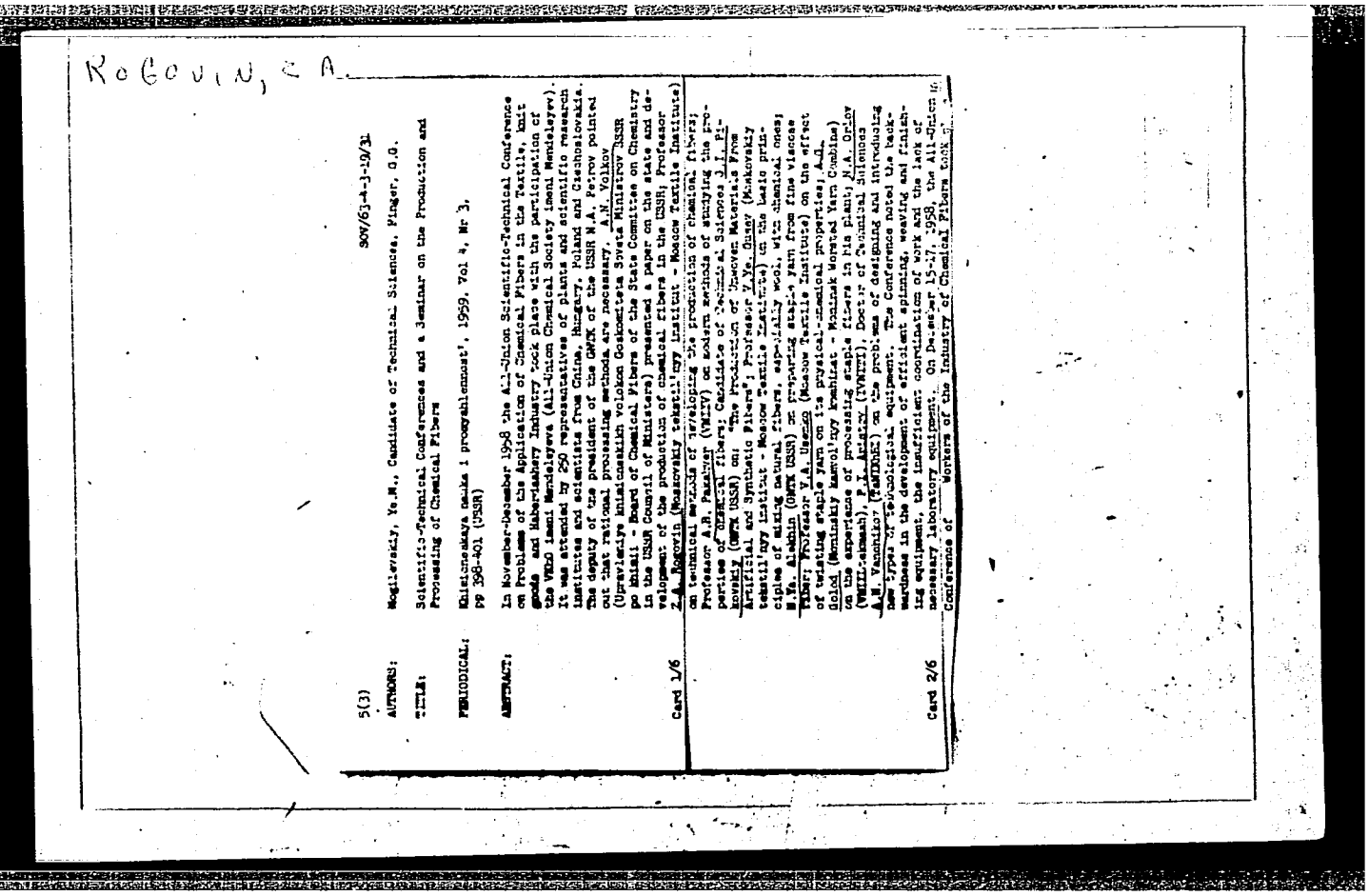

RoGovin, Z A.

SOV/63-4-3-19/31

5(3)

AUTHORS: Mogilevskiy, Ye.M., Candidate of Technical Sciences, Finger, G.G.

TITLE: Scientific-Technical Conferences and a Seminar on the Production and Processing of Chemical Fibers

PERIODICAL: Khimicheskaya nauka i proyzhlennost', 1959, Vol 4, Nr 3, pp 398-401 (USSR)

ABSTRACT: In November-December 1958 the All-Union Scientific-Technical Conference on Problems of the Application of Chemical Fibers in the Textile, Knit goods and Haberdashery Industry took place with the participation of the VNII imeni Mendeleyeva (All-Union Chemical Society imeni Mendeleyev). It was attended by 250 representatives of plants and scientific research institutes and scientists from China, Hungary, Poland and Czechoslovakia. The deputy of the president of the GKNK of the USSR N.A. Perov pointed out that rational processing methods are necessary. A.N. Volkov (Upravleniye khimicheskikh volokon Goskomiteta Soveta Ministrov SSSR po khimii - Board of Chemical Fibers of the State Committee on Chemistry in the USSR Council of Ministers) presented a paper on the state and development of the production of chemical fibers in the USSR; Professor Z.A. Rogovin (Moskovskiy tekstil'nyy institut - Moscow Textile Institute) on technical aspects of the production of chemical fibers; Professor A.P. Pasechnik (VNIIV) on modern methods of studying the properties of chemical fibers; Candidate of Technical Sciences, I.I. Perepelkin (GNKK USSR) on the Production of Uneven Materials From Artificial and Synthetic Fibers"; Professor Z.Ye. Gusev (Moskovskiy tekstil'nyy institut - Moscow Textile Institute) on the basic principles of mixing natural fibers, especially wool, with chemical ones; M.Ya. Alekhin (GNKK USSR) on preparing staple yarn from fine viscose fiber; Professor V.A. Usenko (Moscow Textile Institute) on the effect of twisting staple yarn on its physical-mechanical properties; A.G. Gold (Nerinskiy kamvol'nyy kombinat - Nerinsk Worsted Yarn Combine) on the experience of processing staple fibers in his plant; N.A. Orlov (VNIILegmash), P.I. Artamov (TsNIIMash); Doctor of Technical Sciences A.N. Vanchikov (TsNIIMash) on the problems of designing and introducing new types of technological equipment. The Conference noted the backwardness in the development of efficient spinning, weaving and finishing equipment, the insufficient coordination of work and the lack of necessary laboratory equipment. On December 15-17, 1958, the All-Union Conference of Workers of the Industry of Chemical Fibers took

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77267
SOV/63-4-6-1/37

AUTHORS: Professor Rogovin, Z. A., Academician Kargin, V. A.

TITLE: Some Scientific and Technical Problems of Cellulose Processing

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 6, pp 690-696 (USSR)

ABSTRACT: The authors stress the importance of further studies on cellulose polymers which have been neglected in the USSR during the past years in favor of synthetic polymers. In view of the inexhaustible amounts of cellulose raw materials, it is imperative that more attention be given to these natural resources. In particular, studies should be directed towards: (1) modification of the characteristics of cellulose; (2) improvement of the quality and durability of cellulose materials; (3) development of new, and the improvement of existing, manufacturing methods. Compared with synthetic fibers, cellulose fibers have the following deficiencies: low resistance to the action of chemical agents and

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microorganisms; lower elasticity and abrasion resistance; higher thermal conductivity and inflammability. These characteristics can be modified by various methods, such as: introduction of various substituents into the cellulose macromolecule; introduction of new functional groups (e.g., nitrile and amino groups); obtaining graft copolymers of cellulose and carbon chain or hetero-chain synthetic polymers; processing with flammability-reducing and wrinkle-resistance-imparting agents; treatment with various chemical agents which decrease the ordering of the macromolecule chains and hence increase the elasticity and elongation of the fibers; mixing cellulose fibers with various synthetic fibers during the spinning or weaving process. Some of the above methods are being used industrially; some are still in the experimental or laboratory stage. High cost and inadequate equipment are often limiting factors in the application of certain methods, e.g., partial cyanoethylation was recommended 10 to 12 years ago for strengthening some desirable characteristics of the cellulose fibers, but it presented

difficulties in industrial application due to the high cost of acrylonitrile and to insufficiently hermetic equipment. Only after several years of additional studies was a continuous cyanoethylation process developed which precluded any side reactions and reduced the expenditure of acrylonitrile. The synthesis of graft polymers has not yet been solved satisfactorily; the reaction is difficult to regulate and yields a mixture of the initial polymers, graft copolymers, and homopolymers. This mixture can be used directly in the manufacture of some plastics but not in the manufacture of modified fibers; the latter requires a separation of the graft copolymer from the other polymer by means of fractional dissolving. The process requires, therefore, further investigation and development of a reaction which would preclude formation of the copolymer. The synthesis of graft cellulose copolymers with carbon chain polymers should be studied further, particularly in order to minimize the destruction of cellulose by the radicals formed in the decomposition of the diazo compounds. One of the authors

recently synthesized a modified cellulose containing amino and nitrile groups; this reaction should be developed into an industrially acceptable process. The structure and the strength of natural fibers, such as ramie and flax, and of fortizan-type cellulose fibers (Z. A. Rogovin, Fundamentals of Chemistry and Technology of Chemical Fibers (Osnovy khimii i tekhnologii proizvodstva khimicheskikh volokon), Gizlegprom, 1957) can be improved by treatment with anhydrous ethylamine or 80% aqueous solution of ethylamine, concentrated urea solution, liquid ammonia, and other reagents which increase the elongation of the fibre considerably without reducing its tensile strength. The variant of this method suggested by American authors is expensive and uses considerable amounts of ethylamine which must be regenerated. The principle, however, seems to be interesting, particularly in connection with the problem of increasing the strength of viscose cord fibers which in foreign countries has been raised by 50-70% in the past 5-7 years. There is

Some Scientific and Technical Problems of Cellulose Processing

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a method of producing extra-strong fortizan fibers with breaking length of 70-75 km but their low elongation (4-6%) limits practical application to cord manufacture. These extra-strong fibers were obtained from cellulose triacetate by stretching the fiber during hydrolysis, that is, at the time when the bonds are being rearranged and new-type bonds appear in the polymer's macromolecule. The above principle applied to other cellulose derivatives (e.g., cellulose xanthate) could yield extra strong fibers with increased elongation. Further studies are recommended to increase the life of cellulose fibers, fabrics, plastics, and films, (particularly their abrasion resistance and aging resistance) by impregnation with chemicals or by incorporating into the fibers various plasticizers and inhibitors of thermal oxidation and mechanical breakdown. Increased elasticity of the macromolecules is obtained in mixed cellulose esters with irregular structure, such as cellulose acetate-butyrate, or mixed esters of cellulose with acetic acid and higher fatty acids; the latter esters should

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require no addition of plasticizers. Attention must be given also to the plasticization of cellulose polymers with synthetic polymers, a method used widely in other high-molecular compounds technology, and to quality standardization of the cellulose polymer, which should be completely uniform and should contain as little as possible of admixtures or low-molecular fractions. The authors recommend a switch from batch cooking to continuous cooking, the use of wetting agents to facilitate the uniform diffusion of alkalis into the fiber, and replacing hypochlorite with other, milder reagents which do not act destructively on the cellulose macromolecule. New processing methods of wood pulp should also be investigated, particularly the so-called "hydrotropic method" which consists of treating the pulp with organic reagents at high temperature. Since practically all cellulose esters are thermoplastic, particularly acetyl- and ethyl-cellulose, the possibility of their extrusion into monofilaments and threads (similarly to saran filaments

and polypropylene threads) should be investigated. There are 6 references, 1 U.S., 1 U.N., 4 Soviet. The U.S. reference is: N. Nelson, Conrad, Text. Res. J., 23, 428 (1953).

5(3)

AUTHOR: Rogovin, Z. A. SOV/74-28-7-3/5

TITLE: New Methods of Modification of the Properties of Cellulose (Novyye metody modifikatsii svoystv tsellyulozy)

PERIODICAL: Uspekhi khimii, 1959, Vol 28, Nr 7, pp 850 - 876 (USSR)

ABSTRACT: The modification of cellulose and its esters and the production of material with new technically valuable qualities can be carried out by different methods. According to the author the highest scientific and technical importance falls to the following processes: a) surface esterification or treatment of cellulose fibers; b) synthesis of block- and vaccinated copolymers of cellulose; c) synthesis of preparations of cellulose and other polysaccharides with functional groups other than the hydroxyl group. The best developed methods are those of surface treatment. Investigations in the other two fields are in a state of development only. Surface treatment is used for the transformation and improvement of the properties of the fibers. In most cases this can be effected by partial substitution of single OH-groups in the macromolecule of cellulose by means of sour or alkyl radicals. In this case, not only amount and

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character of the functional groups introduced into the macromolecule are of importance. Investigations have shown that the materials obtained at the same degree of substitution differ in their properties due to different conditions of treatment. Further methods of surface treatment are mentioned:a)partial acetylation of cellulose fibers (Refs 15-18); b) partial treatment of cellulose fibers with ethyl cyanide (Refs 19 - 41); c) production of incombustible and non-glowing cellulose fibers. Here two methods are used: First surface impregnation with antipyrene and, secondly, surface esterification of cellulose (Refs 42 - 47); d) production of fast-dyed cellulose fibers. One of the most promising ways is the production of dye directly on the fiber by means of an interaction of corresponding semifinished products used for the synthesis of the dye. A more recent method is based on the interaction of cellulose with water-soluble dyes containing a group reacting at relatively low temperatures with the hydroxyl groups of the cellulose macromolecule (Refs 48-50). In recent years numerous papers were published dealing with the planning and study of treatment conditions of cellulose, and in particular cotton fiber (Refs 51-60). The possibilities to influence the properties of cellulose

and its derivatives are much greater if new methods of synthetic polymer chemistry, and in particular the production of block- and vaccinated copolymers, are used. Numerous papers have been published on the production of block copolymers of cellulose or its esters. The following two methods are of the greatest interest; a) Formation of cellulose macroradicals and subsequent reaction with the macroradicals of other polymers exposed to decomposition along with cellulose; b) interaction of completely substituted cellulose esters with specific functional groups at the ends of the macromolecule with macromolecules of other polymers. The synthesis of vaccinated copolymers of cellulose and its esters can be effected according to three patterns: a) by polymerization of the monomer according to the radical mechanism at the center formed in the macromolecule of cellulose or its esters: b) by opening and subsequent polymerization of strained cycles on account of their interaction with the hydroxyl group of the cellulose macromolecule; c) by polycondensation of the monomer due to the interaction with the functional group of the macromolecule of cellulose or another polysaccharide (Refs 55, 62-68, 76, 77).

New Methods of Modification of the Properties of Cellulose

SOV/74-28-7-3/5

The synthesis of modified cellulose preparations with functional groups other than the hydroxyl group, which is of great scientific and technological importance, has as yet not been investigated. Work at the laboratory of the institute is being continued. However, since the investigations have not yet come to an end, the work carried on is only briefly mentioned. The results of work in this field will be published in future papers and surveys. There are 8 tables and 77 references, 17 of which are Soviet.

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

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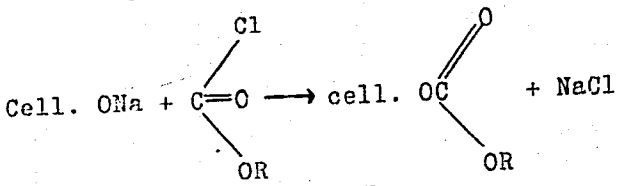
5 (3)
AUTHORS: Rogovin, Z. A., Kozlova, Yu. S. SOV/79-29-5-56/75

TITLE: Synthesis of Alkylcarbonate Esters of Cellulose and Investigation of Their Properties (Sintez alkilugol'nykh efirov tsellyulozy i issledovaniye ikh svoystv). 73rd Communication From the Series "Investigation of the Structure and the Properties of Cellulose and Their Esters" (73-e soobshcheniye iz serii "Issledovaniye stroyeniya i svoystv tsellyulozy i yeye efirov")

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1667-1671 (USSR)

ABSTRACT: Alkyl carbonic esters were obtained according to the following equation of reaction:



$R = CH_3, C_2H_5$

Card 1/3

Synthesis of Alkylcarbonate Esters of Cellulose and Investigation of Their Properties. 7rd Communication From the Series "Investigation of the Structure and the Properties of Cellulose and Their Esters" SOV/79-29-5-56/75

The authors synthesized methyl carbonic ester with γ = 38-87 and ethyl carbonic ester with γ = 50-65 at room temperature. The stability offered by these esters to dilute acids and lyes, hot water and temperature increase was investigated. The results obtained by saponification with sodium lye are given in tables 1 and 2 (compared with methyl xanthogenate). The acid radical was found to influence considerably the stability of cellulose esters. Also the type of the alkyl ester is of importance; ethyl carbonic esters of cellulose, for instance, saponify under the same conditions slower than methyl carbonic esters. The resultant esters were not affected by hot water. Methyl-xanthogenate (methyl-dithio-carbonic ester of cellulose) offers stronger stability to saponification with sodium hydroxide. There are 2 tables and 2 Soviet references.

Card 2/3

Synthesis of Alkylcarbonate Esters of Cellulose and Investigation of Their Properties. 73. Communication From the Series "Investigation of the Structure and the Properties of Cellulose and Their Esters" SOV/79-29-5-56/75

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

SUBMITTED: April 28, 1958

Card 1/3

SOV/80-32-4-26/47

5(3)

AUTHORS: Konkin, A.A. and Rogovin, Z.A.

TITLE: The Principal Regularities in the Hydrolysis of Polysaccharides in Homogeneous and Heterogeneous Media (Osnovnyye zakonomernosti gidroliza polisakharidov v gomogennoy i geterogennoy sredakh)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 4, pp 852-857 (USSR)

ABSTRACT: The present paper represents the 73rd communication from the series of investigations into the structure and properties of cellulose, and the 12th communication from the series of investigations into the process of hydrolysis of polysaccharides. The authors discuss certain general regularities in the hydrolysis of polysaccharides in homogeneous and heterogeneous media and cite the data on the correlation of hydrolysis rates of polysaccharides, disaccharides and "monozid"s under various conditions in a table. The conclusions drawn by the authors from their own experiments and from literature data are as follows: 1. The acetal bonds of polysaccharides differ insignificantly in resistance to the action of hydrolyzing agents. As far as relative resistance of acetal bonds to the action of acids is concerned, the polysaccharides can

Card 1/3

The Principal Regularities in the Hydrolysis of Polysaccharides in Homogeneous and Heterogeneous Media

be arranged in the following series of decreasing resistance: chitin> cellulose>galactan>mannan>laminarin>xylan>amylose; 2. The resistance of acetal bonds with respect to the action of hydrolyzing agents does not depend, as a rule, on a degree of polymerization of polysaccharides; 3. The hydrolysis rate of polysaccharides in a heterogeneous medium is determined by their physical structure which, in its turn, depends on the peculiarities in the structure and composition of macromolecules. According to the relative rate of hydrolysis in a heterogeneous medium, the polysaccharides can be arranged in the following sequence: galactan>laminarin>xylan>amylose>mannan>cellulose> chitin.

There is 1 table and 11 references, 9 of which are Soviet, 1 English and 1 Danish.

RoGovin, Z.A.

PHASE I BOOK EXPLOITATION SOV/4579

Konferentsiya po razvitiyu proizvoditel'nykh sil Vostochnoy Sibiri, 1958.
Khimicheskaya sektsiya

Khimicheskaya promyshlennost'; trudy konferentsii (Chemical Industry; Transactions
of the Conference on the Development of Production Forces in Eastern Siberia)
Moscow, Izd-vo AN SSSR, 1960. 202 p. (Series: Razvitiye proizvoditel'nykh
sil Vostochnoy Sibiri) Errata slip inserted. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Sovet po izucheniyu proizvoditel'nykh sil.
Sibirskoye otdeleniye.

Editorial Board: I.P. Bardin (Deceased) Chief Ed., Academician; M.A. Lavrent'yev,
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T.S. Khachaturov, Corresponding Member, AS USSR; N.F. Rostovtsev, Academician,
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RSFSR; A. Ye. Probst, Professor; V.F. Vasyutin, Professor; V.A. Krotov, Professor;
P.V. Vasil'yev, Doctor of Economic Sciences; G.I. Lyudogovskiy, Candidate of
Technical Sciences; F.A. Letunov, Candidate of Geological and Mineralogical
Sciences; and M.G. Shkol'nikov, Candidate of Economic Sciences; Editorial
Board of this volume: S.I. Vol'fkovich (Resp. Ed.); G.V. Uvarov, Deputy
Chairman, State Committee on Chemistry, Council of Ministers USSR; and
V.P. Komarov, Docent; Ed. of Publishing House: A.L. Bankvitser; Tech. Ed.:
V.V. Brazgul'.

PURPOSE: This book is intended for chemical engineers and economic planners
concerned with the industrial development of Eastern Siberia.

COVERAGE: This volume is one of a series of 13 containing the Transactions of the
Conference on the Development of the Productive Forces in Eastern Siberia. The
Conference took place in August 1958. The volume contains summaries of 20 reports
presented at the meetings of the Chemical Section of the Conference, brief summaries
of pertinent discussions, and the text of resolutions taken by the Chemical Section.
The reports deal with the possibilities of developing chemical industries in
Eastern Siberia capable of producing artificial fibers, acetylene, plastics,
synthetic detergents, synthetic rubber, mineral fertilizers, sulfuric acid,
nitrogen, soda, chlorine, etc. No personalities are mentioned. There are no
references.

SOV/4579

Chemical Industry (Cont.)

Card 9/10

PHASE I BOOK EXPLOITATION SOV/4984

International symposium on macromolecular chemistry. Moscow, 1960.

Mezhdunarodnyy simpozium po makromolekulyarnoy khimii SSSR, Moskva, 14-18 iyunya 1960 g.; doklady i avtoreferaty. Sektsiya III. (International Symposium on Macromolecular Chemistry Held in Moscow, June 14-18, 1960; Papers and Summaries) Section III. [Moscow, Izd-vo AN SSSR, 1960] 469 p. 55,000 copies printed.

Tech. Ed.: P. S. Kashina.

Sponsoring Agency: The International Union of Pure and Applied Chemistry. Commission on Macromolecular Chemistry.

PURPOSE: This book is intended for chemists interested in polymerization reactions and the synthesis of high molecular compounds.

COVERAGE: This is Section III of a multivolume work containing papers on macromolecular chemistry [illegible] the synthesis of special-purpose polymers, e.g., ion exchange resins, semiconductor materials, etc., methods of catalyzing polymerization reactions, properties and chemical interactions of high molecular materials, and the effects of various factors on polymerization and the degradation of high molecular compounds. No personalities are mentioned. References given follow the articles.

ROGOVIN, Z.A.

23

Kozlov, Zakhar A.

"New methods of modification of cellulose fiber properties."

report to be submitted at Gordon Research Conferences - New London, New Hampton, and Meriden, N.H., 13 June-2 Sep 60.

Lomonosov University, Moscow.
Moscow Textile Institute.

ROGOVIN, Z.A., red.; ROGAYLINA, A.A., red.; SHPAK, Ye.G., tekhn.red.

[Progress in the chemistry and technology of polymers; collected works] Uspekhi khimii i tekhnologii polimerov; sbornik. Pod red. Z.A.Rogovina. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1960. Vol.3. 1960. 210 p. (MIRA 14:7)

1. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I.Mendeleyeva. (Polymers)

AUTHORS: Nechayeva, S. A., Rogovin, Z. A. S/183/60/000/01/003/031
B004/B014

TITLE: Investigation of the Processes of Strengthening and Thermal Relaxation as Well as of Some Properties of the Polypropylene Fiber

PERIODICAL: Khimicheskiye volokna, 1960, Nr 1, pp 10-12 (USSR)

TEXT: This is the 14th communication about the series of investigations of new fibers with aliphatic hydrocarbon chains. The authors studied the additional drawing in a glycerin bath at 130-140°, which is necessary for the production of strong polypropylene fibers. However, they believe that it would be more effective to carry out the drawing process in inert gas or steam. Table 1 indicates that an increase in drawing from 400 to 700 per cent duplicates the breaking length without a considerable reduction in elongation. The authors studied thermal relaxation in loose fibers and fibers wound on bobbins. Table 2 shows the influence of the heating time. Relaxation at 100° comes to an end after 30 minutes, and the shrinkage remains constant after this time. Table 3 shows the influence of temperature. Thermooxidative destruction sets in above 100°, so that it is necessary to work in an inert medium. Table 4 contains experimental data on thermal relaxation on bobbins (100°, 120°). An increase in

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Investigation of the Processes of Strengthening and Thermal Relaxation as Well as of Some Properties of the Polypropylene Fiber

S/183/60/000/01/003/031
B004/B014

the breaking length without a change in elongation was observed. Furthermore, the authors studied the stability of the fiber against NaOH, H_2SO_4, and HNO_3.

Table 5 shows that the polypropylene fiber is as resistant as the chlorin fiber. Its thermal stability, however, is low, especially if its breaking length and elongation are tested directly at high temperatures (Table 7). The thermal stability of this fiber is intended to be increased by intense irradiation. M. N. Pastushenko assisted in the experiments performed. There are 7 tables and 2 Soviet references.

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

Card 2/2

2

AUTHORS: Ionova, T. V., Uzina, R. V., Mogilevskiy, Ye. M., Rogovin, Z. A., Segalevich, N. A.

S/183/60/000/01/010/031
B004/B014

TITLE: The Effect of the Composition of the Avivage on the Strength of the Linkage Between Tire Cord and Rubber

PERIODICAL: Khimicheskiye volokna, 1960, Nr 1, pp 30-31 (USSR)

TEXT: This paper is intended to explain the problem as to whether the application of the avivage to tire cord strengthens the adhesion between the latter and the rubber impregnation, or whether the avivage applied to the cord diffuses through the impregnating film and changes the contact between the latter and the rubber. The experiments were performed with a special viscose monofilament and 14V viscose cord. The fibers were treated with the avivages Nevvol and Avirol, and a simultaneous experiment was conducted without an avivage. The specimens were impregnated with latex albumin, and the strength of linkage of the specimens with SKB rubber was determined from the loosening of fibers under static and repeated compression. Table 1 shows that in the case of both specimens (monofilament and cord) the linkage with the rubber is loosened by avivage, especially in the case of Avirol. Next, the authors studied the diffusion of Avirol prepared by sulfonation of butyl oleate with radioactive

Card 1/2

The Effect of the Composition of the Avivage on the Strength of the Linkage Between Tire Cord and Rubber

S/183/60/000/01/010/031
B004/B014

sulfuric acid. The accompanying diagram of the measured radioactivity illustrates that Avirol diffuses through the impregnating film (latex albumin or latex resorcinol formaldehyde). There are 1 figure, 1 table, and 5 references, 3 of which are Soviet.

ASSOCIATION: VNIIV (Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna - All-Union Scientific Research Institute for Synthetic Fibers) NIIShP (Nauchno-issledovatel'skiy institut shinnoy promyshlennosti - Scientific Research Institute of the Tire Industry)

Card 2/2

Rogovin, Z. A.

S/183/60/000/03/03/007
B020/B054

15.5560

82062

AUTHORS: Nechayeva, S. A., Malinskiy, Yu. M., Rogovin, Z. A.

TITLE: Investigation of the Possibility of Increasing Thermal Stability of Polyolefin Fibers by the Action of Ionizing Radiation

PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 7-9

TEXT: It is known that the polyolefin fibers hitherto used in the industry have a low thermal stability. These fibers and the products made of them have the following disadvantages: a) Irreversible shrinking at increased temperatures, and b) considerable decrease in strength with increase in temperature. To increase the thermal stability of polymeric materials, mainly fibers, various methods have been used; one of the most efficient methods is the formation of chemical bonds between the macromolecules of the polymer which is, however, rendered difficult by the fact that these polymers do not contain reactive functional groups by which a reticulation could occur. It was the object of the investigation under review, the results of which are briefly outlined,

Card 1/3

Investigation of the Possibility of Increasing Thermal Stability of Polyolefin Fibers by the Action of Ionizing Radiation

S/183/60/000/03/03/007
B020/B054

Figs. 3 and 4 show the curves of the change in tearing strength and breaking dilation of irradiated and not irradiated polyethylene fibers at increased temperatures. The results obtained show that the shrinking of polypropylene fiber at increased temperatures is considerably reduced by irradiation with a simultaneous considerable deterioration of the mechanical properties. In the polyethylene fiber, an irradiation under the conditions mentioned reduces the flowing of the fiber at increased temperatures but cannot reduce the losses of strength at such temperatures. This publication is the 15th of the series "Investigations in the Field of Production of New Types of Synthetic Fibers". There are 4 figures, 1 table, and 4 references: 3 Soviet and 1 British.

ASSOCIATION: MTI (Moscow Textile Institute)

Card 3/3

PLYPLINA, A.I.; ROGOVIN, Z.A.

Effect of pigments on the photochemical destruction of cellulose nitrates in lacquer coatings. Lakokras.mat.i ikh prim no.3:36-37 '60. (MIRA 14:4)

(Pigments) (Nitrocellulose)

POGOSOV, Yu.L.; ROGOVIN, Z.A.

Polycondensation of glucose in solutions of concentrated hydrofluoric acid. Uzb. khim. zhur. no.3:58-61 '60. (MIRA 13:10)

1. Institut khimii AN UzSSR i Moskovskiy tekstil'nyy institut.
(Glucose) (Hydrofluoric acid)

YEROKHINA, V.G.; MOROZOVA, N.V.; ROGOVIN, Z.A.

Development of a method for determining the reactivity of cellulose in the process of acetylation. Plast.massy no.8:65-66 '60.
(MIRA 13:10)

(Cellulose) (Acetylation)

ROGOVIN, Z.A.; VLADIMIROVA, T.V.

Synthesis of new cellulose derivatives and other polysaccharides. Part 5: Synthesis of phenyl ethers of cellulose and study of their properties. Vysokom. soed. 2 no. 3:341-346 Mr '60. (MIRA 13:11)

1. Moskovskiy tekstil'nyy institut i Vsesoyuznyy zaochnyy energeticheskiy institut.
(Cellulose)

POLYAKOV, A.I.; DEREVITSKAYA, V.A.; ROGOVIN, Z.A.

Investigation of the possibility of preparing unsaturated compounds of cellulose by the Chugaev reaction. Vysokom. soed. 2 no. 3:386-389 Mr '60. (MIRA 13:11)

1. Moskovskiy tekstil'nyy institut.
(Cellulose)

CHZHAN VEI-GAN [Chang Wei-kang]; ROGOVIN, Z.A.

Synthesis of new cellulose derivatives and other polysaccharides.
Part 6: Synthesis of cellulose esters and chloroalkane acids.
Vysokom. soed. 2 no. 3:456-462 Mr '60. (MIRA 13:11)

1. Moskovskiy tekstil'nyy institut.
(Cellulose) (Valertic acid)
(Heptanoic acid)

KOZLOVA, Yu.S.; ROGOVIN, Z.A.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 8: Synthesis of cellulose dialdehyde dioximes and study of the possibility of their subsequent reduction. Vysokom. soed. 2 no.4:614-618 Ap '60. (MIRA 13:11)

1. Moskovskiy tekstil'nyy institut.
(Cellulose) (Oximes)

SUN'TUN [Sun T'ung]; DEREVITSKAYA, V.A.; ROGOVIN, Z.A.

Synthesis of new cellulose derivatives and other polysaccharides. Part 8: Synthesis of cellulose esters of amino acids. Vysokom. soed. 2 no.5:785-790 My '60. (MIRA 13:8)

1. Moskovskiy tekstil'nyy institut.
(Amino acids) (Cellulose)

S/190/60/002/010/026/026/XX
B004/B064

AUTHOR: Rogovin, Z. A.

TITLE: The Phase State of Cellulose

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 10, pp. 1588-1592

TEXT: The phase state of cellulose is discussed in this periodical upon a resolution adopted by the Tashkentskaya konferentsiya po khimii i fiziki tsellyulozy (Tashkent Conference on the Chemistry and Physics of Cellulose). The author of the present paper studies this problem and criticizes papers of V. A. Kargin (Ref. 1) and A. I. Kitaygorodskiy and D. A. Tsvankin (Ref. 2); he is of the opinion that the definitions of the phase of cellulose are not clear. There is no uniform definition of the notion of phase and the crystalline and amorphous polymer, which is a further reason for misunderstandings. On the basis of experimental data, e.g., 1) change of the specific weight and volume of cellulose in recrystallization, 2) change of the solution heat of cellulose preparations in recrystallization, the author is of the opinion that phase transformations

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occur when ground, amorphisized cellulose is recrystallized. The phase state of cellulose is, however, no major problem. The solution of the following problems is of greater importance: a) modifying the properties of cellulose for the purpose of gaining substances with new properties; b) regulation of the structure of cellulose and its derivatives to improve its mechanical properties. It is suggested that physicists study the problem of the phase state of cellulose. D. I. Leypunskaya, I. G. Stoyanova, A. L. Zaydes, M. V. Vol'kenshteyn, N. V. Mikhaylov, V. I. Sharkov, V. P. Levanova, E. Z. Faynberg, S. M. Lipatov, D. V. Zharkovskiy, I. L. Zagrevskaya, and V. M. Bukhman are mentioned. There are 12 references: 10 Soviet and 2 US.

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

SUBMITTED: June 27, 1960

S/190/60/002/012/002/019
B017/B055

AUTHORS: Sun' Tun, Derevitskaya, V. A., Rogovin, Z. A.

TITLE: Synthesis of New Derivatives of Cellulose and Other Polysaccharides. IX. Synthesis of Aromatic Amino Acid Esters of Cellulose

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 12, pp. 1768-1771

TEXT: The authors developed a method for the synthesis of aromatic amino acid esters of cellulose. The synthesis of these cellulose esters is carried out in two stages, i.e.

1) $\left[C_6H_7O_2(OH)_3\right]_x + x\,ClCO\text{-}C_6H_4\text{-}NO_2 + x\,C_5H_4N\text{-}NH_2 \longrightarrow$

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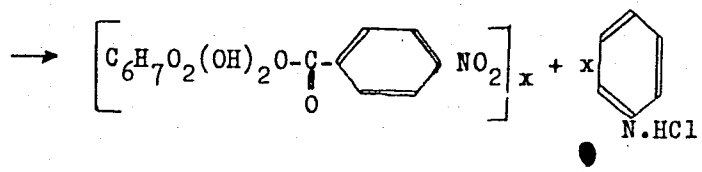
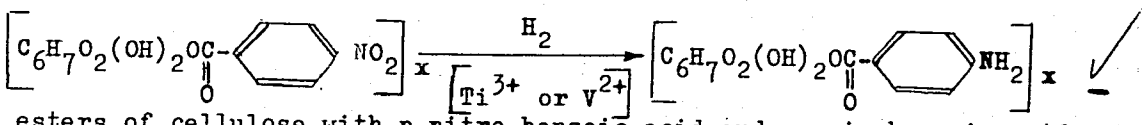
Synthesis of New Derivatives of Cellulose and Other Polysaccharides. IX. Synthesis of Aromatic Amino Acid Esters of Cellulose

S/190/60/002/012/002/019
B017/B055





The esters of cellulose with p-nitro-benzoic acid and p-aminobenzoic acid were prepared for the first time. The influence of esterification conditions on the composition of the p-nitro-benzoic acid ester formed is shown in Table 1. A higher degree of esterification ($\gamma > 200$) renders the cellulose p-nitro-benzoate soluble in dimethyl formamide, and capable of swelling strongly in acetone, nitro-benzene, and pyridine. No suitable solvent was found for products esterified to a lower degree. The composition of the cellulose p-aminobenzoates is given in Table 2. Highly esterified p-aminobenzoic acid esters of cellulose are insoluble in

Card 2/3

Synthesis of New Derivatives of Cellulose and Other Polysaccharides. IX. Synthesis of Aromatic Amino Acid Esters of Cellulose

S/190/60/002/012/002/019
B017/B055

dimethyl formamide, acetone, nitro-benzene, pyridine, glacial acetic acid, and 20% aqueous HCl. Cellulose p-aminobenzoates are suitable for the preparation of chemically died cellulosic fibers. There are 2 tables and 2 Soviet references.

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

SUBMITTED: May 11, 1960

Card 3/3

NEPOCHATIKH, V.I.; ROGOVIN, Z.A.

Investigating the possibility of obtaining fibers from stable derivatives of cellulose methates. Khim.volok. no.1:40-44 '61. (MIRA 14:2)

1. Moskovskiy tekstil'nyy institut.
(Viscose) (Textile fibers, Synthetic)

ROGOVIN, Z.A.; ROZHANSKAYA, F.M.; PEREPECHKIN, L.P.

Spinning of a triacetate staple fiber. Khim.volok. no.1:48-51 '61. (MIRA 14:2)

1. Moskovskiy tekstil'nyy institut (for Rogovin). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Rozhanskaya, Perepechkin).
(Textile fibers, Synthetic)

PLYPLINA, A.I.; RASKIN, Ya., L.; ROGOVIN, Z.A.

Photochemical degradation of nitrocellulose films. Report No.2: Effect of oil-containing components on the photochemical degradation of cellulose nitrates in paint coatings. Lakokras. mat. i ikh prim. no.3:8-11 '61. (MIRA 14:6)
(Nitrocellulose)
(Protective coatings)

PLYPLINA, A.I.; RASKIN, Ya.L.; ROGOVIN, Z.A.

Investigation of the processes of photochemical destruction of nitrocellulose coatings. Report No. 3: Effect of stabilizers on the resistance of nitrocellulose in lacquer-paint coatings to photochemical destruction. Lakokras. mat. i ikh. prim. no.4:2-5 '61. (MIRA 16:7)

(Protective coatings) (Nitrocellulose)

S/183/61/000/004/002/002
B101/B206

AUTHORS: Vasil'yev, Yu. V., Rogovin, Z. A.

TITLE: Elaboration of a method for evaluating thermomechanical properties of fibers

PERIODICAL: Khimicheskiye volokna, no. 4, 1961, 42 - 46

TEXT: The authors start from a study by V. A. Kargin (Ref. 1: DAN, 62, 239 (1948); ZhFKh, 23, 563 (1949)) describing the determination of the deformation of polymers under constant load and at increasing temperature. In the present study, they describe a device where this method is applied to finished fibers which differ from initial polymers owing to orientation of their macromolecules. Fig. 1 shows the device schematically. The thread (1) to be tested is clamped. Clamp (2) is suspended from the cross beam (10), the lower clamp (4) is loaded with the weight (5). The thermostat is heated by the heater (3) (1 kw, 220 v). The rate of heating is controlled by rheostat (6) and scale (12) (or by autotransformer). The inspection glasses (7) and (8) provided with a scale permit measurement of the changes in length of fibers at increasing temperature. The other

Card 1/

Elaboration of a method...

parts of the device are: (9) thermometer; (11) inclined face for catching the torn-off weight (5); (13) door of thermostat; (14) opening for the torn-off weight; (15) heat insulation layer; (16) core of thermostat. When loading the fiber with weights equaling at least 10% of the tensile strength, the length of the fiber was 100 mm. When using smaller loads or studying the shrinkage, the length was 200 mm. The thread deformation is retarded owing to relaxation. Tests were made to study this effect. It was found that at a maximum rate of heating of 3 - 4°C per min, retardation becomes negligible. With this device the thermomechanical properties were investigated for: (1) nitron fiber; (2) fiber from A-20 (A-20) copolymer of acrylonitrile and acrylic acid; (3) fiber from modified A-20Ca (A-20Ca) copolymer in which cross links from Ca were formed between the carboxylic groups of acrylic acid by means of $Ca(OH)_2$. The following thermomechanical data necessary for the evaluation of fibers are proposed: (a) temperature of the beginning of shrinkage; (b) temperature at which shrinkage reaches a certain degree (10 or 20%); (c) temperature at which the fiber has a certain residual value of tensile strength (10 or 30%). It is stated that the tensile strength values obtained by this device are slightly higher than those obtained by dynamometer, since the constant load leads to a

Card 2/4

reinforcement of the fiber. Tests of various fibers showed: (1) Viscose rayon has greater thermostability (30% residual tensile strength at 240°C) than polyester fiber (30% at 206°C); (2) cross linking by means of Ca increased the 30% residual strength of A-20 fiber from 134°C to 266°C, that is, above the value for viscose rayon. There are 3 figures, 4 tables, and 5 Soviet-bloc references.

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

27567
S/183/61/000/005/003/003
B101/B110

15.5560

AUTHORS: Wu Jung-jui, Rogovin, Z. A., Konkin, A. A.

TITLE: Grafting of polyacrylic acid on polypropylene fibers

PERIODICAL: Khimicheskiye volokna, no. 5, 1961, 18 - 20

TEXT: The present paper deals with the elimination of the disadvantages of pure polypropylene fiber (PPF): hydrophobic nature, poor colorability, slipperiness, and unpleasant "cold" feel. For this purpose, grafting of polyacrylic acid (PAA) on previously oxidized PPF was studied. PPF no. 35 of the VNIIV containing 6% of amorphous, 6% of stereoblock, and 88% of isotactic fraction was used. Oxidation was carried out by means of atmospheric oxygen at 100°C. The initial PPF had a breaking length of 37.4 km, an elongation of 32%. After 48 hr oxidation, the PPF contained 0.010% of hydroperoxide groups (HPOG) at a breaking length of 33.4 km and a 28% elongation. After 96 hr, the HPOG content was 0.031%, breaking length: 21.9 km, elongation: 14.7%. PPF oxidized for 48 hr was used for further experiments. Grafting of acrylic acid on oxidized PPF was conducted in sealed ampuls with a 50% aqueous solution of the acid in argon atmosphere.

Card 1/3

Grafting of polyacrylic...

The content of carboxyl groups in the grafted polymer was analytically determined after removal (washing-out) of the homopolymer (PAA). After 7 hr grafting, the following data were determined: with a 0.007% HPOG content at 65°C, no COOH groups had formed in the PPF, at 80°C, PPF contained 3.5% COOH. The data for 0.010% HPOG are: 65°C, 3.0% COOH; 80°C, 4.1% COOH; for 0.031% HPOG: 65°C, 10.7% COOH; 80°C, 17.3% COOH. The reaction time exerted an effect upon the content of COOH groups. This content was 2.3% after 3 hr grafting at 80°C; breaking length of PPF: 31.0 km, elongation: 24.9%. After 10 hr grafting, the COOH content was 14.0%, breaking length: 27.8 km, elongation: 23.0%. To inhibit the formation of the PAA homopolymer, crystalline $FeSO_4 \cdot 7H_2O$ was added as reducing agent in amounts equivalent to the HPOG content in PPF. The following data were found:

Time of grafting, hr	temperature, °C	content of COOH groups, %	breaking length, km	elongation, %
3	80	3.7	27.2	22.3
49	21	1.5	31.4	24.2
121	21	10.7	27.0	24.6

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Grafting of polyacrylic...

In the presence of $FeSO_4$, grafting has to take place in inert gas atmosphere, since in the presence of O_2, the Fe^{2+} ions act as catalysts in the oxidative destruction of polypropylene. Inhibition of the formation of homopolymeric PAA was confirmed by the fact that grafted PPF was soluble in acetone (in which PAA is insoluble) without turbidity in the presence of $FeSO_4$. Modified PPF was colorable by basic dyes. With a relative atmospheric moisture of 55.8%, PPF containing 8.2% COOH adsorbed 0.25% of the moisture, PPF containing 12.3% COOH, however, adsorbed 0.73%. There are 2 figures, 4 tables, and 8 references: 3 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: G. Natta, J. Polymer Sci., 34, 685 (1959); D. J. Metz and R. B. Mesvolian, J. Polymer Sci., 16, 345 (1955); R. J. Orr, H. Levevne, Williams, J. Am. Chem. Soc., 79, 3137 (1957); R. Urwin, J. Polymer Sci., 27, 580 (1958).

ASSOCIATION: MTI

Card 3/3

VASIL'YEV, Yu.V.; ROGOVIN, Z.A.

Synthesis of copolymers of acrylonitrile with acrylic and methacrylic acids and formation of fibers based on them. Khim.volok. no.6:13-19 '61. (MIRA 14:12)

1. Moskovskiy tekstil'nyy institut.
(Textile fibers, Synthetic) (Acrylonitrile)

BAYBAKOVA, Z.V.; ROZHANSKAYA, F.M.; ROGOVIN, Z.A.

Formation of staple fiber from acetic acid solutions of triacetyl cellulose. Khim.volok. no.6:46-48 '61. (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Cellulose acetate) (Textile fibers, Synthetic)

ISPRAVNIKOVA, A.G.; SLETKINA, L.A.; ROGOVIN, Z.A.

Specific effect of cellulose nitrate on the radical polymerization of some vinyl monomers. Vysokom. soed. 3 no.1:46-49 Ja '61. (MIRA 14:2)

1. Moskovskiy tekstil'nyy institut.
(Nitrocellulose) (Vinyl compounds)
(Polymerization)

GAL'BRAYKH, L.S.; DEREVITSKAYA, V.A.; ROGOVIN, Z.A.; Prinimala uchastiye: LISHEVSKAYA, M.O.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 13: Method of synthesizing cellulose dinitrile. Vysokom.soed. 3 no.7:980-983 Jl '61. (MIRA 14:6)

1. Moskovskiy tekstil'nyy institut.
(Cellulose)

POLYAKOV, A.I.; DEREVITSKAYA, V.A.; ROGOVIN, Z.A.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 4: Synthesis of cellulose esters with α-amino acids. Vysokom.soed. 3 no.7:1027-1030 Jl '61. (MIRA 14:6)

1. Moskovskiy tekstil'nyy institut.
(Cellulose esters) (Amino acids)

GAL'BRAYKH, L.S.; DEREVITSKAYA, V.A.; ROGOVIN, Z.A.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 16: Synthesis of some nitrogen-containing derivatives of cellulose and other polysaccharides. Vysokom.soed. 3 no.10:1561-1565 O '61. (MIRA 14:9)

1. Moskovskiy tekstil'nyy institut.
(Polysaccharides) (Nitrogen compounds)

GUSEV, S.S.; SUN' TUN [Sun T'ung]; YERMOLENKO, I.N.; ROGOVIN, Z.A.

Infrared spectroscopy study of the structure of cellulose esters of aliphatic amino acids and of cellulose-polyamide graft copolymers. Vysokom.soed. 3 no.11:1684-1687 N '61. (MIRA 14:11)

1. Moskovskiy tekstil'nyy institut i Institut obshchey i neorganicheskoy khimii AN BSSR.
(Cellulose esters--Spectra)
(Amino acids)
(Polymers)

SUN' TUN [Sun T'ung]; GUSEV, S.S.; YERMOLENKO, I.N.; ROGOVIN, Z.A.

Infrared spectroscopy study of the structure of cellulose esters of aromatic amino acids and cellulose-acrylonitrile graft copolymers. Vysokom.soed. 3 no.11:1688-1691 N '61. (MIRA 14:11)

1. Moskovskiy tekstil'nyy institut i Institut obshchey i neorganicheskoy khimii AN BSSR.
(Cellulose esters--Spectra)
(Amino acids)
(Acrylonitrile polymers)

ROGOVIN, Z. A., prof. (Moskva)

New methods for modifying cullulose properties. Periodica polytechn chem 5 no.2:65-87 '61.

1. Moskovskiy Tekstilniy Institut, Moskva.

S/069/61/023/002/008/008
B101/B208

AUTHORS: Dogadkin, B. A., Kargin, V. A., Meyerson, S. I., Rogovin, Z. A.

TITLE: In Memory of Sergey Mikhaylovich Lipatov (Deceased)

PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 2, 1961, 238-239

TEXT: This article is devoted to S. M. Lipatov, an expert in the field of colloid chemistry and physical chemistry of polymers, who died on January 8, 1961. At various institutes he organized laboratories for high-molecular compounds. In particular, he established the laboratoriya iskusstvennogo volokna im. Nauchno-issledovatel'skiy institut im. Karpova (Laboratory of Synthetic Fibers of the Scientific Research Institute imeni Karpov), now the Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers). In the Soviet Union, Lipatov was the first to lecture on high-molecular compounds and the physical chemistry of dyeing. He was a university teacher for 30 years. Mention is made of his monographs "Fiziko-khimicheskiye osnovy krasheniya" ("Physico-chemical basis of dyeing") (1929); "Vysokomolekulyarnyye

Card 1/2

S/069/61/023/002/008/008
B101/B208

In Memory ...

soyedineniya" (High-molecular compounds) (1934 and 1943), "Problemy ucheniya o vysokopolimerakh" (Problems of high-polymer research) (1941). Lipatov took part in conferences on colloid chemistry, and was for many years a member of the editorial board of "Kolloidnyy zhurnal" and of the nauchno-tekhnicheskiy sovet Ministerstva pishchevoy promyshlennosti (Scientific and Technical Council of the Ministry of Food Industry). Considerable organizing work was done by Lipatov at the Akademiya nauk BSSR (Academy of Sciences BSSR) as Academician and Vice President. There is 1 figure.

Card 2/2

POGOSOV, Yu.L.; ROGOVIN, Z.A.

Progress in the synthesis of polysaccharides. Usp.khim. 30 no.10: 1215-1236 O '61. (MIRA 14:9)

1. Institut polimerov AN UzbSSR i Moskovskiy tekstil'nyy institut.
(Polysaccharides)

KHVOSTENKO, N.M.; CHZHAN VYE-GAN; ROGOVIN, Z.A.

New method of preparing cellulose materials possessing water-repellent properties. Zhur.prikl.khim. 34 no.3:656-659 Mr '61. (MIRA 14:5)

1. Moskovskiy tekstil'nyy institut.
(Cellulose)

DEREVITSKAYA, V.A.; SMIRNOVA, G.S.; ROGOVIN, Z.A.

Comparative acidity of hydroxyl groups in D-glucose, α- and β-methylglucosides, maltose, and cellobiose. Dokl. AN SSSR 141 no.5:1090-1092 D '61. (MIRA 14:12)

1. Moskovskiy tekstil'nyy institut. Predstavleno akademikom M.M. Shemyakinym.

(Glycosides) (Hydroxyl group)

ROGOVIN, Z.A.; CHERNAYA, V.V.

Synthesis of cellulose derivatives resistant to the action of microorganisma. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.5:109-113 '62. (MIRA 15:11)

1. Moskovskiy tekstil'nyy institut.
(Cellulose--Microbiology) (Textile research)

U ZHUN-ZHUY[Wu Jung-jui]; ROGOVIN, Z. A.; KONKIN, A. A.

Grafting of polyacrylonitrile and polyvinyl acetate to polypropylene fibers. Khim. volok. no.6:11-14 '62. (MIRA 16:1)

1. Moskovskiy tekstil'nyy institut.

(Acrylonitrile) (Vinyl acetate polymers)
(Propene) (Textile fibers, Synthetic)

NEPOCHATYKH, V.I.; ROGOVIN, Z.A.; Prinimal uchastiye ROTENBERG, R.

Development of the method for the production of thiourethane cellulose "hektaks" fibers and investigating their properties. Khim. volok. no.1: 64-68 '62. (MIRA 18:4)

1. Moskovskiy tekstil'nyy institut.

DRUZHININA, T.V.; ANDRICHENKO, Yu.D.; KONKIN, A.A.; ROGOVIN, Z.A.

Process of polyethylene fiber formation. Khim.volok. no.2:17-20 '62. (MIRA 15:4)

1. Moskovskiy tekstil'nyy institut.
(Polyethylene)

34993
S/190/62/004/003/013/023
B110/B144

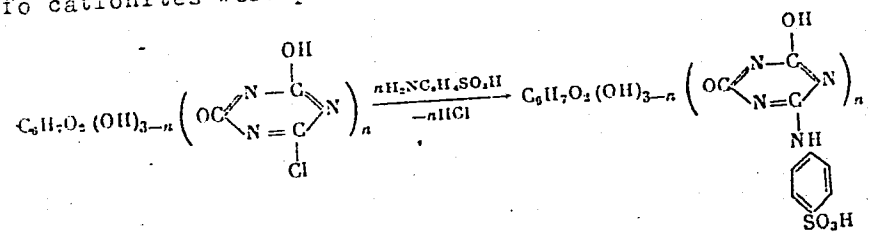
5.3931
15.9010

AUTHORS: Gal'braykh, L. S., Derevitskaya, V. A., Rogovin, Z. A., Chekalin, M. A.

TITLE: Synthesis of new derivatives of cellulose and other polysaccharides. XVIII. Synthesis of sulfo derivatives of cyanuric cellulose

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962, 409-413

TEXT: Sulfo cationites were produced from cyanuric cellulose (A):



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S/190/62/004/003/013/023
B110/B144

Synthesis of new derivatives...

The substitution degree of A calculated from the N content is 10-50 % higher than that calculated from the Cl content. Cl atoms not reacting with cellulose are assumed to be partially saponified by treating alkali cellulose with cyanuric chloride solution. In this process, chemical bonds may form among cellulose macromolecules. The physical structure of cellulose has a great effect upon the substitution degree which becomes 2.5-3.5 times as high by the use of sulfite cellulose instead of cotton fabric. For 60-72 hrs A was treated with aqueous solutions of Na salts of sulfanilic or metanilic acids (3 moles acid per structural unit of A) with the module 1:20. CH_3COONa addition increased the pH value to 4.0-4.5.

The sulfur content of the sulfo derivative of A was determined gravimetrically, its ion exchangeability by potentiometric titration in the presence of NaCl. Maximum S substitution at γ = 33 corresponded to 1.23 meq/g. 65-80 % of Cl atoms enter into A. The Cl content in the sulfo derivative, however, is $\leq$ 0.1-0.2 % which suggests additional hydrolysis. The curves of potentiometric titration of sulfo cationites have two salient points corresponding to two types of acid groups in the macromolecule: at pH = 3.8-4.0, the SO_3H groups are completely neutralized, and at 7.8-8.1, the OH group formed by Cl hydrolysis is neutralized. Derivatives

Card 2/3

Synthesis of new derivatives...

of A can also be produced by treating cellulose with aqueous solutions of 2-chloro-4,6-di(4'-sulfophenyl amino)-triazine-1,3,5 and 2,4-dichloro-6-(4'-sulfophenyl amino)-triazine-1,3,5. Owing to its low substitution degree this method is not suited for the synthesis of sulfo cationites. The low degree of cationite swelling owing to chemical bonds among macromolecules, might recommend its application to ion exchange chromatography. There are 1 figure, 2 tables, and 9 references: 1 Soviet and 8 non-Soviet. The most important reference to the English-language publication reads as follows: J. Warren et al. Text. Res. J., 22, 584, 1952.

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

SUBMITTED: March 2, 1961

Card 3/3

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

New method of preparing block copolymers. Vysokom.soed. 4 no.5:783-784 My '62. (MIRA 15:7)
(Polymers)

LIVSHITS, R.M.; ROGOVIN, Z.A.

Synthesis of graft copolymers using pentavalent vanadium compounds.
Vysokom.soed. 4 no.5:784 My '62. (MIRA 15:7)
(Polymers) (Vanadium compounds)

SUN' TUN [Sun T'ung]; ROGOVIN, Z.A.

Synthesis of new derivatives of cellulose and other polysaccharides. Part 20: Synthesis of graft copolymers of cellulose and polyenanthamide. Vysokom.soed. 4 no.5:714-719 My '62. (MIRA 15:5)

1. Moskovskiy tekstil'nyy institut.
(Cellulose) (Polyamides)

37448

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

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

TITLE: New method of preparing block copolymers

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

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

Card 1/2

37438
S/190/62/004/005/014/026
B110/B108

AUTHORS: Sun T'ung, Rogovin, Z. A.

TITLE: Synthesis of new derivatives of cellulose and other polysaccharides. XX. Synthesis of cellulose-polyenanthamide graft copolymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 5, 1962, 714-719

TEXT: Cellulose - polyamide (polyenanthamide) graft copolymers can be obtained by: (a) polycondensation of the methyl ester of ε-aminoenanthic acid in the presence of cellulose ester and aminoenanthic acid; (b) condensation of the relatively low-molecular hydrochloric polyaminoenanthic chloride with cellulose or cellulose esters containing free OH groups; (c) reaction of cellulose with the hydrochloride of aminoenanthic acid chloride in the presence of tertiary amines; (d) interfacial reaction of poorly esterified, water-soluble cellulose ester with the hydrochloride of aminoenanthic acid chloride. (a) Cellulose ester with the hydrochloride (γ = 50) was heated to 100°C in Ar with the methyl ester of aminoenanthic acid. As the amino acid radical is split off, this method cannot be used.

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