85659

S/079/60/030/009/016/022/XX
B001/B066

5.3630 2209,1287,1266

AUTHORS: Shostakovskiy, M. F., Guseynov, I. I., Shmonina, L. I., Vasil'yev, G. S., and Lopatin, B. V.

TITLE: Synthesis of Compounds of the Type of 1-Alkoxy-2-oxy-chlorophosphine-3-chlorobutadienes-1,3

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 9, pp. 2836 - 2838

X

TEXT: The present paper deals with the reaction of ethinyl-vinyl alkyl ethers with PCl_5 (a reaction that has not been described as yet). They suggest the following scheme:

$$ROCH{=}CH{-}C{\equiv}CH + 2PCl_5 \longrightarrow \left[ROCHCl{-}CHPCl_4{-}C{\equiv}CH \cdot PCl_5\right] \longrightarrow$$

$$\longrightarrow \left[ROCH{=}CPCl_4{-}CCl{=}CH_2 \cdot PCl_5\right] + 2SO_2 \longrightarrow ROCH{=}CPOCl_2{-}$$

$$-CCl{=}CH_2 + 2SOCl_2 + POCl_3 .$$

Card 1/3

Synthesis of Compounds of the Type of 1-Alkoxy-2-oxy-chlorophosphine-3-chlorobutadienes-1,3

S/079/60/030/009/016/022/XX
B001/B066

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED. August 15, 1959

Card 3/3

S/079/60/030/009/022/022/XX
B001/B066

AUTHORS: Shostakovskiy, M. F., Prilezhayava, Ye. N., Tsymbal, [illegible]
and Stolyarova, L. G.

TITLE: Stereochemistry of Addition Reactions to the Triple Bond

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 9,
pp. 3143 - 3144

TEXT: There are no data available in publications on the stereochemistry of addition reactions of any reagents to the triple bonds of diacetylene or vinyl acetylene systems, nor on the stereochemistry of the reactions of homolytic addition of thiols to acetylenes. The authors indicate that the stereochemistry of reactions of diacetylene (I) with alkyl thiols (II) giving 1-alkyl-thiobuten-1-ines-3 (III), investigated previously by them, as well as of reactions of compounds (III) with (II) giving the 1,4-dialkyl-thiobutadienes-1,3 (IV), take place according to the scheme given here. The geometric structure (IV) follows from the sulfone structure (V) which was confirmed by means of

Card 1/3

Stereochemistry of Addition Reactions
to the Triple Bond

S/079/60/030/009/022/022/XX
B001/B066

dipole moments, ultraviolet and infrared spectra, as well as by quantitative isomerization of the cis-cis and cis-trans compounds (V) into the trans-trans compounds (V), under the action of iodine. Thus, the thiols add stereospecifically in nucleophilic reactions with the C$\equiv$C bonds, both in diacetylene and vinyl acetylene systems, according to the rule of "trans-addition" (Ref. 2). Under free radical conditions, the reaction does not proceed quite stereoselectively, so that mixtures of cis-cis and trans-trans isomers (IV) are formed at low temperatures. The predominance of (IV) indicates a high specific gravity of the cis addition of the radicals. At elevated temperatures, isomerization to the trans-trans compound (IV) occurs. It was also found that the reaction of ethanethiol with ethyl-thio ethine (VI) (Ref. 3) proceeds stereospecifically both under free radical and ionic conditions, and obeys the rule of "trans-addition", since (VII-cis) is the main product yielding the sulfone (VIII-cis). Under free radical conditions, thiols may react with various acetylene compounds stereochemically in different ways. This is always due to the stability of one of the geometrical forms of the radical RSCH=CX which appears

Card 2/3

84866

S/079/60/030/010/002/030
B001/B075

11. 1340

AUTHORS: Shostakovskiy, M. F., Chekulayeva, I. A., and Kondrat'yeva, L. V.

TITLE: Reaction of Diacetylene With Amino Alcohols and Amines. II. Synthesis of N-Alkyldiamino-1,4-butadienes-1,3 and N,N-Dialkylamino-1-buten-1-ines-3

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10, pp. 3179-3183

TEXT: The authors had shown in Ref. 4 that the reactions of diacetylene with aliphatic amines and β-(dialkylamino) ethanols start at room temperature and proceed exothermically without a catalyst. This paper gives a detailed description of these reactions in which the nature of the initial amine plays an essential part. Thus, primary amines react with diacetylene to form N-alkyldiamino-1,4-butadienes-1,3 (I) (80% yield) according to the following formula:

$2RNH_2 + CH{\equiv}C{-}C{\equiv}CH \longrightarrow RNHCH{=}CH{-}CH{=}CHNHR$ (I) (I a): $R = n\text{-}C_4H_9$;

Card 1/3

84866

Reaction of Diacetylene With Amino Alcohols and Amines. II. Synthesis of N-Alkyldiamino-1,4-butadienes-1,3 and N,N-Dialkylamino-1-buten-1-ines-3

S/079/60/030/010/002/030
B001/B075

(I b): n-C_5H_{11}; (I v): iso-C_5H_{11}. Secondary amines react under analogous conditions, forming N,N-dialkylamino-1-buten-1-ines-3 (II) (60% yield) according to the following formula:

$$R_2NH + CH{\equiv}C{-}C{\equiv}CH \longrightarrow R_2NCH{=}CH{-}C{\equiv}CH \quad (II)$$

(II a): R = C_2H_5; (II b): n-C_4H_9; (II v): n-C_5H_{11}. The addition of the amines to compound (II) requires harder conditions. The diene structure of the reaction products was proved by spectral analysis and by diene synthesis with ethyl vinyl sulfone. The structure of the products obtained by reacting diacetylene with secondary amines was proved by hydrolysis. The synthesized products are unstable liquids which are only stable when kept in sealed ampoules between -50° and -70°. Dienes (I) and (III) absorb carbon dioxide from the air and form solid, stable carbonates. The spectral analysis carried out by B. V. Lopatin confirmed the presence of the group $-\mathrm{C}\begin{smallmatrix}{=}\mathrm{O}\\ {-}\mathrm{O}{-}\end{smallmatrix}$ in the dienes obtained. There are 1 table and 6 references: 3 Soviet, 2 German, and 1 US.

Card 2/3

84866

Reaction of Diacetylene With Amino Alcohols and Amines. II. Synthesis of N-Alkyldiamino-1,4-butadienes-1,3 and N,N-Dialkylamino-1-buten-1-ines-3

S/079/60/030/010/002/030
B001/B075

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: August 4, 1959

X

Card 3/3

84867

5.3700 only 2209,1273

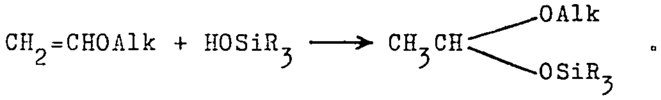
S/079/60/030/010/003/030
B001/B075

AUTHORS: Shostakovskiy, M. F., Kondrat'yev, Kh. I., and Gorban', A.K.

TITLE: Investigation in the Field of Synthesis and Conversions of Oxygen-containing Organosilicon Compounds. IX. Synthesis of Organosilicon and Naphthyl-containing Acetals

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10, pp. 3183-3186

TEXT: In Ref. 1 the authors showed that the reaction of vinyl alkyl ether with silanols led to the formation of mixed trialkyl silyl alkyl acetals:



$$CH_2{=}CHOAlk + HOSiR_3 \longrightarrow CH_3CH\begin{cases} OAlk \\ OSiR_3 \end{cases}$$

The subject of the present paper is the reaction of vinylethyl, vinylisopropyl, and vinyl-n-butyl ethers with α-naphthyl dimethyl silanol (I). Compound (I) was obtained by hydrolyzing the acetic acid ester of α-naphthyl dimethyl silanol. Shostakovskiy and his collaborators (Ref. 1) have found that, due to an ionic mechanism, vinyl alkyl ether reacted

Card 1/2

84867

Investigation in the Field of Synthesis and Conversions of Oxygen-containing Organosilicon Compounds. IX. Synthesis of Organosilicon and Naphthyl-containing Acetals

S/079/60/030/010/003/030
B001/B075

easily with silanols in the presence of traces of mineral acids. However, organosilicon acetals were found to be formed even without a catalyst. In this case, the yield is very high, whereas in the presence of acids (Refs. 1, 2) side reactions take place, such as hydrolysis, dimerization of the silanols, and polymerization of the initial vinyl ether. The structure of the acetals obtained was proved by hydrolyzing them with 2% sulfuric acid under the formation of α-naphthyl dimethyl silanol, acetaldehyde, and the corresponding alcohol. The α-naphthyl dimethyl silyl alkyl acetals (II) are colorless, very mobile liquids which are soluble in ordinary organic solvents but insoluble in water. There are 1 table and 2 Soviet references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: December 14, 1959

Card 2/2

87539

15 8107

S/079/60/030/012/027/027
B001/B064

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P., and Kolodkin, F. L.

TITLE: Sulfides Containing Lactam Cycles

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 12, pp. 4108-4109

TEXT: Independently of recent publications (Ref. 1), the authors synthesized the following compounds by reacting the sodium salts of lactams with allyl halides: N-allyl-α-pyrrolidone (I), N-allyl-ε-caprolactam (II), and N-allyl-α-piperidone (III) which had hitherto not been described. Their polymerization and the copolymerization of compound (I) with methyl methacrylate and methyl acrylate were studied (Ref. 2). The hitherto unknown addition reaction of the mercaptans to the compounds (I) and (II), and to N-vinyl lactams was studied. When these two compounds were heated with equimolar amounts of ethyl mercaptan (IV), n-butyl mercaptan and the ethyl ester of thioglycolic acid (V) in the presence of the dinitrile of azoisobutyric acid (0.5% of the total weight), in the ampoule at 70 - 80°C, compounds of the general formula

Card 1/2

S/080/60/033/04/40/045

AUTHORS: Shostakovskiy, M.F., Sidel'kovskaya, F.P., Ogibina, T.Ya.

TITLE: A Refractometric Method for the Quantitative Determination of α-Pyrrolidone in a Mixture With γ-Butyrolactone

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 978 - 980

TEXT: α-pyrrolidone is obtained by the interaction of γ-butyrolactone with ammonia. In the final product there are admixtures of butyrolactone. In the literature there is no method to be found for the determination of α-pyrrolidone in the presence of γ-butyrolactone. For this purpose the refractometric method is proposed. Standard mixtures of α-pyrrolidone in the presence of γ-butyrolactone were prepared and their refractive indices were measured. The data obtained are shown in a table and a graph. It is evident that the refractive index increases with the concentration of pyrrolidone. On reaching a pyrrolidone content of 35 - 40% in the butyrolactone solution the average increment of the refractive index becomes a constant value, being $5.03 \cdot 10^{-4}$ on the average. The method of pyrrolidone determination has an accuracy of ± 1%.

Card 1/2

S/080/60/033/04/40/045

A Refractometric Method for the Quantitative Determination of α-Pyrrolidone in a Mixture With γ-Butyrolactone

There are: 2 tables, 1 graph and 5 references, 3 of which are Soviet and 2 German.

ASSOCIATION: Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR (Institute of Organic Chemistry imeni N.D. Zelinskiy of the AS USSR)

SUBMITTED: August 13, 1959

Card 2/2

80066

5.3700(B)

S/020/60/132/01/40/064
B011/B126

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., Kayutenko, L. A.

TITLE: Synthesis and Conversions of Trialkylsilylethinylvinylalkyl Ethers

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 153-156

TEXT: The object of the authors' work is to study the interaction of ethinylvinylalkyl ethers with trialkylchlorosilanes. The ethers mentioned in the title were synthesized via the organomagnesium derivative, which was produced, not in tetrahydrofuran (as in Refs. 13, 14), but in sulfuric ether (2), (3). Both these reactions take place under mild conditions. The trialkylsilylethinylvinylbutyl ethers that were obtained remind one, because of their chemical properties, of the ethinylvinylalkyl ethers which contain no silicon. Both are easily hydrolized with 2% H_2SO_4. The former have also, however, some peculiarities. The hydrolysis performed to detect their structure has shown that a splitting of the Si-C bond takes place (see scheme). The butin-1-al-4 that is produced by this reaction is isomerized to tetrolaldehyde. Unlike the silicon-free ethinylvinylalkyl ethers, trialkylsilylethinylvinyl ethers are not hydrogenated via $PtO_2 \cdot H_2O$ or via Pd precipitated on calcium sulfate. Their hydrogenation succeeds only via a mixture

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Card 1/2

80066

Synthesis and Conversions of Trialkylsilylethinylvinylalkyl Ethers

S/020/60/132/01/40/064
B011/B126

of 2% $Pd/CaCO_3$ and 5% Pt/C. Trimethylsilylbutoxy-4-butadiene-1,3 was obtained by a gradual hydrogenation. The latter is condensable with maleic anhydride and forms the adduct (A), from which butylalcohol and trimethylsilanol are split off. Under the conditions of the reaction the latter gives hexamethyldisiloxane. The authors have established that the adduct is a phthalanhydride. The silicon-rich ethinylvinylbutyl ether cannot be converted either by heating with butanol without a catalyst or in the presence of from 1-2% of basic or acid catalyst into trimethylsilylbutin-1-al-4-acetal. There are 1 table and 17 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: January 8, 1960, by B. A. Kazanskiy, Academician

SUBMITTED: December 24, 1959

Card 2/2

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.; LOPATIN, B.V.

Vinyl compounds in diene synthesis. Stereospecific orientation of the diene synthesis of vinyl aryl ethers condensed with cyclopentadiene in relation to the temperature. Dokl.AN SSSR 132 no.5:1118-1121 Je '60. (MIRA 13:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR. Predstavleno akademikom B.A. Kazanskim.
(Ethers) (Cyclopentadiene)

83558

S/020/60/134/001/010/021
B016/B067

5.3610

AUTHORS: Shostakovskiy, M. F., Corresponding Member of the AS USSR, Sidel'kovskaya, F. P., Kolodkin, F. L.

TITLE: On the Interaction Between Lactams and Diacetylene

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 1, pp. 102-105

TEXT: It was the purpose of the present paper a) to produce valuable unsaturated compounds with conjugate systems of multiple bonds in combination with such heteroatoms as oxygen, nitrogen, and sulfur by reacting lactams with diacetylene; b) to compare the activity of acetylene with that of diacetylene in their reaction with lactams. The authors studied the addition of lactams to diacetylene by the example of pyrrolidone. Compared with acetylene, this reaction takes place much more readily at 20-35°C at atmospheric pressure. Sodium salt of pyrrolidone served as catalyst. In benzene medium the process takes place much more rapidly than dioxane. The isolated crystalline main product (I) of the reaction corresponded to monopyrrolidonyl butenine. Besides, small amounts of an

Card 1/3

83558

On the Interaction Between Lactams and Diacetylene S/020/60/134/001/010/021
B016/B067

isomeric compound (II) were isolated. The IR spectra (taken by T. N. Shkurina and B. V. Lopatin, collaborators at the Optical Laboratory of the authors' institute) excluded the lactim, allene-, or butadiine structures. The authors concluded from an almost complete agreement between the absorption frequencies that the structures of I and II are equal. The hydrogenation product of I is identical with N-n-butyl pyrrolidone (IV). This proves that I has the structure of 1-N-(α-pyrrolidonyl)-1-buten-3-ine. This is proved by the formation of triacetyl benzene in boiling I with 5% H_2SO_4. The most likely cause of the differences between I and II as to the melting temperature, solubility, and lower stability of II is probably the monotropic molecular dimorphism. By hydrolyzing I and II under less rigid conditions, the carbonyl compound formed was converted into 2,4-dinitrophenyl hydrazone (DNPH) by direct addition of 2,4-dinitrophenyl hydrazine (DNP) to the reaction mixture. In this connection, the hitherto unknown 2,4-DNPH $C_{14}H_{15}N_5O_5$ (VI) was isolated. The authors proved that (VI) is a derivative of 1-N-(α-pyrrolidonyl)-1-buten-3-one (V) which is formed as a result of the hydration of 1-N-(α-pyrrolidonyl)-1-buten-3-ine on the triple bond. Ketone V was isolated under mild conditions also without the

Card 2/3

83558

On the Interaction Between Lactams and Diacetylene S/020/60/134/001/010/021
B016/B067

addition of DNP. The degree of conjugation in the molecule is high. The readiness of hydration of the triple bond in N-pyrrolidonyl butenine is probably connected with the interaction between the C=O group of the lactam ring and the vinyl-acetylene chain by means of the nitrogen atom. N-(α-pyrrolidonyl)-1-buten-3-ine adds one thiophenol molecule in the presence of azo-iso-butyric acid dinitrile, and forms 1-N-(α-pyrrolidonyl)-4-phenylthio-1,3-butadiene (VIII). Analytically pure VIII, however, is a mixture of isomers which could not be separated by crystallization. There are 1 figure, 1 table, and 10 references: 6 Soviet, 1 US, and 1 German.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: May 4, 1960

Card 3/3

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S/020/60/135/001/020/030
B016/B067

AUTHORS: Shostakovskiy, M. F., Corresponding Member AS USSR, Chekulayeva, I. A., Kondrat'yeva, L. V., and Lopatin, B.V.

TITLE: Structure and Some Properties of the Products of Interaction Between Diacetylene and Alkyl Amines

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 1, pp.101-104

TEXT: In studying the reaction of diacetylene with primary and secondary alkyl amines (Ref. 1) the authors observed that the N-alkyl-diamino-1,4-butadienes-1,3 and the N,N-dialkyl-amino-1-butenines-3, respectively, are the main products. The authors succeeded in isolating the geometric isomers of N,N-diethyl-amino-1-buten-1-ine-3 (I and II) from the reaction of diacetylene with diethyl amine. The chemical transformations and the data of spectral analysis prove that I and II have cis- and trans-structures, respectively. On heating, isomer I passes over into II. The UV spectrum of II is more intensive than that of I. In the IR spectrum of I, no absorption bands were observed in the range of from 800 to 1000 cm^{-1}, in the IR spectrum of II, however, an intensive absorption band is observed at 945 cm^{-1} which is characteristic of a trans-configuration (Table 1).

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Card 1/4

84667

Structure and Some Properties of the Products of Interaction Between Diacetylene and Alkyl Amines S/020/60/135/001/020/030 B016/B067

Furthermore, an intensive absorption band is observed in the spectrum of substance I at 692 cm^{-1} which is interpreted as the CH-vibrational deformation of the isomer. In spectrum II, no corresponding band exists in this region. The IR spectra of the isomers I and II were taken on a spectrophotometer of the type UR-10. The pictures showed that the bands of the double bond are split into two components. The intensities of the components are not equal. Substance I and II may only be geometrical or place isomers: $(C_2H_5)_2NCH=CH-C\equiv CH$ and $CH_2=CN(C_2H_5)_2-C\equiv CH$. In the range 885-895 cm^{-1} and 3075-3095 cm^{-1} of the IR spectrum of both substances, no absorption bands are observed which are characteristic of a terminal double bond. This confirms the cis-trans isomerism. On the basis of the investigation of products of the addition of amines (III), alcohols (IV), and mercaptans (V) to I and II, the place isomerism seems to be excluded (see Scheme). In the reaction of n-amyl amine with the isomers I and II, 1,4-amino-substituted butadienes (III) were formed under analogous conditions which

Card 2/4

84667

Structure and Some Properties of the Products of Interaction Between Diacetylene and Alkyl Amines

S/020/60/135/001/020/030
B016/B067

had the same physico-chemical constants, formed the same picrates, and also had similar IR spectra. The IR spectra of products of the addition of butyl alcohol (IV) and ethyl mercaptan (V) to I had no absorption bands corresponding to the terminal double bond. This excludes the presence of this bond in the initial isomers. Hence, the addition with the formation of I is the most essential point in the reaction of diacetylene with diethyl amine. This agrees with the results obtained by the ion reaction of the thiols with diacetylene which is stereospecific and proceeds according to the method of the "trans-addition" rule. N-butyl-diamino-1,4-butadiene-1,3 (VI) with cis-cis configuration of the substituents with respect to the double bonds is the main product resulting from the reaction of diacetylene with n-butyl amine. The structure of VI was confirmed by a diene synthesis and by data of spectral analysis. IR spectra of butadiene VI in a polar and a non-polar solvent showed that the position of the absorption bands of >C=N and >C=C< bonds was only slightly influenced (Table 2). The Raman spectrum showed only one line in the region of 1600 cm^{-1}. The bond >C=N (1684 cm^{-1} in the IR spectrum) was also present

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Card 3/4

84667

Structure and Some Properties of the Products of Interaction Between Diacetylene and Alkyl Amines

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X

in a second substance which was formed in a small amount in the reaction of diacetylene with n-butyl amine. This substance will be further investigated. There are 1 figure, 3 tables, and 3 references: 2 Soviet and 1 US.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: July 18, 1960

Card 4/4

ARBUZOV, A.Ye., akad.; VAVILOV, S.I., akad.; VOL'FKOVICH, S.I., akad.; KOCHINA, P.Ya., akad.; LANDSBERG, G.S., akad.; LEYBENZON, L.S., akad.; PORAY-KOSHITS, A.Ye., akad.; SMIRNOV, V.I., akad.; FESENKOV, V.G., akad.; CHERNYAYEV, V.I., akad.; KAPUSTINSKIY, A.F.; KORSHAK, V.V.; KRAVKOV, S.V.; NIKIFOROV, P.M.; PETROV, A.D.; PREDVODITELEV, A.S.; FRISH, S.E.; CHETAYEV, N.G.; CHMUTOV, V.K.; SHOSTAKOVSKIY, M.F.; KUZNETSOV, I.V., red.; MIKULINSKIY, S.R., red.; MURASHOVA, N.Ya., tekhn.red.

[Men of Russian science; essays on prominent persons in natural science and technology: Mathematics, mechanics, astronomy, physics, chemistry] Liudi russkoi nauki; ocherki o vydaiushchikhsia deiateliakh estestvoznaniia i tekhniki: matematika, mekhanika, astronomiia, fizika, khimiia. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961. 599 p. (MIRA 14:10)

1. Chleny-korrespondenty AN SSSR (for Kapustinskiy, Korshak, Kravkov, Nikiforov, Petrov, Predvoditelev, Frish, Chetayev, Chmutov, Shostakovskiy).
(Scientists)

SHOTAKOVSKIY, M.F.; SKVORTSOVA, G.G.; SAMOYLOVA, M.Ya.; ZAPUNNAYA, K.V.;
KOSITSYNA, E.I.

Vinyl compounds. Izv.Sib.otd.AN SSSR no.1:36-43 '61. (MIRA 14:2)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR.
(Vinyl compounds)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.; LOPATIN, B.V.

Vinyl compounds in the diene synthesis. Report No. 4: Comparative characteristics of the dienophilic activity of vinyl and thiovinyl ethers, and optical study of the adducts obtained. Izv. AN SSSR. Otd. khim. nauk no. 1:120-127 Ja '61. (MIRA 14:2)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

(Ethers)

SIDEL'KOVSKAYA, F.P.; ZELENSKAYA, M.G.; SHOSTAKOVSKIY, M.F.

Lactones and lactams. Report No. 17: Dienophilic activity of N-vinyl lactams and of the vinyl ether of N-(β-hydroxyethyl) pyrrolidone. Izv. AN SSSR. Otd. khim.nauk no. 1:128-135 Ja '61. (MIRA 14:2)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Lactams) (Ether) (Pyrrolidinone)

SHOSTAKOVSKIY, M.F. ; SKVORTSOVA, G.G. ; SAMOYLOVA, M.Ya.; ZAPUNNAYA, K.V.

Vinyl compounds. Report No.2: Copolymerization of vinyl esters of the cresol fraction of semicoking tar with acrolein in the presence of ionic catalysts. Izv.Sib.Otd.An SSSR no. 2:50-56 '61. (MIRA 14:3)

1. Institut khimii Vostochno-Sibirskogo filiala Sibirskogo otdeleniya AN SSSR, Irkutsk.

(Vinyl compounds)
(Acrolein)

SHOSTAKOVSKIY~~, M.F.;~~ UVAROVA, N.I.

Synthesis and certain properties of vinyl boronyl ether. Izv. AN SSSR. Otd. khim. nauk no.2:343-348 F '61. (MIRA 14:2)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR i Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Ether)

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; ZELENSKAYA, M.G.; SHKURINA, T.N.,
OGIBINA, T.Ya.

Lactones and lactams. Report No.18: Reaction of vinyl lactams with hydrogen chloride and alcohols. Izv.AN SSSR Otd.khim.nauk no.3:482-487 Mr '61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Lactams)

20941

S/062/61/000/003/008/013
B117/B208

15.8116 2209, 1372

AUTHORS: Shostakovskiy, M. F., Khomutov, A. M., Baykova, R. I., and Kayutenko, L. A.

TITLE: Studies in the field of chemical conversions of unsaturated and high-polymer compounds. Report 17. Synthesis of polymers and copolymers of bis-(methyl-2-buten-1-yne-3)alkylsilanes

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 3, 1961, 488-491

X

TEXT: The authors report on the study of polymerization and copolymerization of: bis-(methyl-2-buten-1-yne-3)diethyl silane, bis-(methyl-2-buten-1-yne-3)dimethyl silane, and bis-(methyl-2-buten-1-yne-3)methyl-propyl silane. Freshly distilled monomers were used. Copolymerization was carried out continuously for 100 hr at 60° ± 1°C. Azoisobutyric acid dinitrile was used as an initiator in a quantity of 0.2 % of the total weight of the monomer. Control experiments for investigating the polymerization of initial monomers were carried out under the same conditions.

Card 1/3

Bis-(methyl-2-buten-1-yne-2)diethyl silane readily polymerizes at room temperature on the air and in the presence of initiators. The polymers are transparent, hard, and three-dimensional substances. They remain unchanged when heated to 400°C. During copolymerization with methyl methacrylate, polymers of different composition are formed, according to the concentration of the initial monomers in the reaction medium. The copolymer yields were found to decrease with increasing content of bis-(methyl-2-buten-1-yne-3)diethyl silane in the reaction medium from 10 to 25 mole%. They change little later on. The number of silane links in the copolymer increases as its concentration in the reaction medium rises. The resultant copolymers are hard, light yellow substances with high dielectric properties: $\rho_v = 10^{17}-10^{18}$ ohm·cm. Bis-(methyl-2-buten-1-yne-3)diethyl silane was used for "cross-linking" in the polymerization of methacrylic acid and styrene. For comparison, the copolymerization of methyl methacrylate with bis-(methyl-2-buten-1-yne-3)dimethyl silane and bis-(methyl-2-buten-1-yne-3)methyl-propyl silane was studied at equal molar ratios. It was found that those copolymers have the highest yields and the highest content of silane links, which contain links of bis-(methyl-2-buten-1-yne-3)diethyl silane. There are 1 figure, 5 tables, and 6

20941

S/062/61/000/003/008/013
B117/B208

Studies in the field of chemical...

references: 3 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR)

SUBMITTED: November 19, 1959

X

Card 3/3

BATUYEV, M.I.; SHMONINA, L.I.; MATVEYEVA, A.D.; SHOSTAKOVSKIY, M.F.

Optical study of the structure of some 1, 2, 3-substituted 1, 3-butadienes. Izv.AN SSSR Otd.khim.nauk no.3:513-516 Mr '61. (MIRA 14:4)

1. Institut goryuchikh iskopayemykh AN SSSR i Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Butadiene)

20942
S/062/61/000/003/009/013
B117/B208

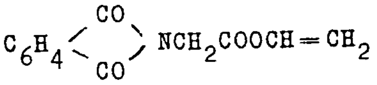
15-8103 2203, 1372

AUTHORS: Shostakovskiy, M. F. and Shapiro, E. S.

TITLE: Synthesis of phthalyl glycine vinyl ester and some of its conversions

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 3, 1961, 517-519

TEXT: In this news in brief, the authors report on their method of direct vinylation of N-substituted α-amino acid. Phthalyl glycine was used as standard substance. Vinylation was carried out in a rotating autoclave with a manometer and a thermocouple with automatic temperature regulation. The reaction took place at a high acetylene excess in absolute dioxane medium, i.e., under conditions that had been repeatedly applied with success by the authors. Anhydrous zinc acetate was used as catalyst. The corresponding vinyl ester was thus obtained in 80-85 % yield:



$C_6H_4\begin{smallmatrix}CO\\ \\CO\end{smallmatrix}NCH_2COOCH=CH_2$ is a crystalline substance insoluble in most

Card 1/3

20942
S/062/61/000/003/009/013
B117/B208

Synthesis of phthalyl glycine vinyl...

organic solvents, in petroleum, and in water. This fact is used for purifying the vinyl ester from the initial phthalyl glycine in those cases in which vinylation does not quantitatively proceed. Some conversions of the respective vinyl ester were studied. Its hydrolysis was found to occur under more rigorous conditions than in vinyl alkyl esters, i.e., on heating to 80°C with 15 % sulfuric acid. Thiols are added smoothly and quantitatively during catalysis with a radical initiator, thus giving the corresponding sulfides: phthalyl glycine-β-ethyl-thioethyl ester $C_{14}H_{15}O_4NS$, boiling point 139°-141°C (0.015 mm); phthalyl glycine-β-butyl-thioethyl ester $C_{16}H_{19}O_4NS$, boiling point 150°-152°C (0.008 mm). After distillation, both sulfides become nearly colorless, viscous liquids which crystallize on standing. After recrystallization from petroleum ether, their melting points are 43° and 37°-38°C, respectively. In the presence of the dinitrile of azoisobutyric acid and benzoyl peroxide, the phthalyl glycine vinyl ester is polymerized. Also its copolymerization with methyl methacrylate was shown to be possible in principle. There are 3 tables and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc.

Card 2/3

20942

S/062/61/000/003/009/012
B117/B208

Synthesis of phthalyl glycine vinyl...

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR)

SUBMITTED: May 4, 1960 (initially)
October 9, 1960 (after revision)

X

Card 3/3

CHEKULAYEVA, I.A.; SHOSTAKOVSKIY, M.F.; GLADYSHEVSKAYA, V.A.; LIPOVICH, I.V.

Synthesis and transformations of vinyl ethanolamine ethers. Part 13: Copolymerization of some vinyl ethanolamine ethers with methacrylate. Vysokom.soed. 3 no.6:901-907 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo.
(Ethanol) (Methacrylic acid) (Polymerization)

SHOSTAKOVSKIY, M.F.; LASKORIN, B.N.; NIKUL'SKAYA, G.N.; CHEKULAYEVA, I.A.;
IOANISIANI, P.G.

Suspension polymerization of the trivinyl ether of triethanolamine. Synthesis of a new anion exchanger. Vysokom.soed. 3 no.6:908-911 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Ethanol) (Ethers) (Polymerization) (Ion exchanger resins)

25260 S/190/61/003/007/004/021
B101/B208

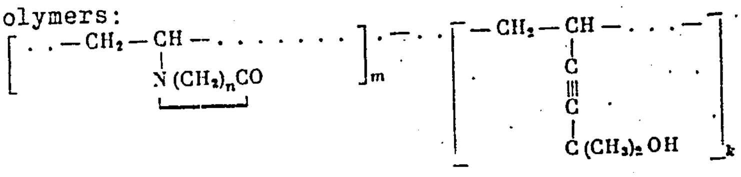
15.8050

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P., Ibragimov, F.

TITLE: Copolymerization of vinyl pyrrolidone and vinyl caprolactam with dimethyl vinyl ethinyl carbinol

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 7, 1961, 976-979

TEXT: The purpose of the present paper was to study the fundamental rules governing the copolymerization of vinyl pyrrolidone (VP) and vinyl caprolactam (VC) with dimethyl vinyl ethinyl carbinol (CARB). It was of interest in this connection that CARB is the raw material for the so-called carbinol glues. The following formula is given for the structure of the copolymers:



$$\left[\cdots-\mathrm{CH_2}-\underset{\underbrace{\mathrm{N(CH_2)_nCO}}}{\mathrm{CH}}-\cdots\cdots\right]_m\cdots\left[-\mathrm{CH_2}-\underset{\substack{|\\ \mathrm{C}\\ \equiv\\ \mathrm{C}\\ |\\ \mathrm{C(CH_3)_2OH}}}{\mathrm{CH}}-\cdots-\right]_k$$

Card 1/5

$n = 3; 5.$

25260 S/190/61/003/007/004/021
Copolymerization of vinyl pyrrolidone ... B101/B208

For the links of the copolymer which consist of carbinol, also the formation of cyclobutene rings is possible. Copolymerization was performed in ampuls at 60°C for 72 hr. 0.2% azoisobutyric acid dinitrile was added as initiator. The results for VC + CARB are as follows:

initial mixture, mole-%		yield of copolymer,%	composition of the copolymer, mole-%	
VC	CARB		VC	CARB
100	0	76.5	100.0	0
90	10	18.7	65.7	34.3
75	25	19.7	38.1	61.9
50	50	33.6	12.6	87.4
25	75	59.1	4.8	95.1
10	90	60.7	was not determined	
0	100	97.5	0	100.0

The composition of the copolymer was calculated from its nitrogen content. The following was found for VP + CARB:

25260

S/190/61/003/007/004/021
B101/B208

Copolymerization of vinyl pyrrolidone ...

initial mixture, mole-%		yield of copolymer, %	composition of the copolymer, mole-%	
VC	CARB		VC	CARB
100	0	67.5	100.0	0
90	10	13.7	46.2	53.8
75	25	23.4	27.9	72.2
50	50	27.9	9.3	[illegible]
25	75	61.3	6.5	93.5
10	90	76.5	was not determined	
0	100	97.5	0	100.0

The following conclusions may be drawn: 1) The copolymers contained more CARB than the initial mixture; 2) the yield increased with increasing CARB content. The copolymers of both types were soluble in acetone and ethanol, insoluble in diethyl ether, petroleum ether, chloroform, benzine and water. Particularly noted is the poor solubility in acetone of the copolymer from 10% VC and 90% CARB. Studying the solubility of the copolymers and homopolymers in some nitrogen-containing solvents:

Card 3/5

25260

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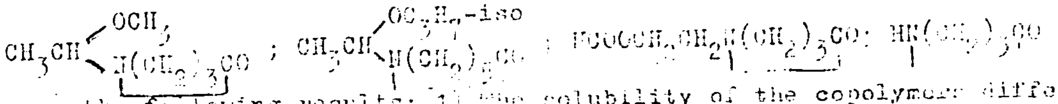
B101/B208

Copolymerization of vinyl pyrrolidone ...



$CH_3CH\langle{}^{OCH_3}_{N(CH_2)_3CO}$; $CH_3CH\langle{}^{OC_3H_7\text{-iso}}_{N(CH_2)_3CO}$; $HOOCCH_2CH_2N(CH_2)_3CO$; $HN(CH_2)_3CO$

gave the following results: 1) the solubility of the copolymers differs from that of the homopolymers; 2) the solubility increases with the VC or VP content of the copolymer. The following is given for the relative viscosity of 1% copolymer solutions:

composition of the initial mixture	relative viscosity, 25°C	composition of the initial mixture	relative viscosity, 25°C
homopolymer VC	3.3[illegible]	homopolymer VP	2.513
75% VC 25% CARB	1.1[illegible]	–	–
50% VC 50% CARB	1.582	50% VP 50% CARB	1.[illegible]
25% VC 75% CARB	1.9[illegible]1	25% VP 75% CARB	1.[illegible]
10% VC 90% CARB	[illegible].011	10% VP 90% CARB	[illegible].117

The copolymers have adhesive and film-forming properties which increase with increasing CARB content. There are 2 figures, 5 tables, and 2 Soviet-bloc references.

Card 4/5

25260

Copolymerizaticn of vinyl pyrrolidone ... S/190/61/003/007/004/021
B101/B208

ASSOCIATION: Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR (Institute of Organic Chemistry imeni N.D. Zelinskiy, AS USSR)

SUBMITTED: August 7, 1960

Card 5/5

26290
S/190/61/003/008/003/019
B110/B220

15.8150

AUTHORS: Shostakovskiy, M. F., Kotrelev, V. N., Kalinina, S. P., Kuznetsova, G. I., Layne, L. V., Borisova, A. I.

TITLE: Organotin monomers and polymers. IV. Synthesis and conversion of tin-containing esters of acrylic and cinnamic acids

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 8, 1961, 1128-1130

X

TEXT: The present paper deals with the synthesis of organotin derivatives of cinnamic and acrylic acids. The synthesis was performed by a method developed by the authors. The vaporous alkyl halide was reacted in a tube furnace or autoclave with an Sn-Mg alloy in the presence of various solvents and catalysts. The alkyl-halide tin compounds formed were saponified with olye to the corresponding hydroxy derivatives, and then the esters were obtained by reaction with acrylic or cinnamic acid. 1) Triethyl-stannyl acrylate $(C_2H_5)_3SnOCOCH=CH_2$, was obtained from a 50% aqueous solution of acrylic acid at 5-10°C by adding triethyl stannol. The white crystalline

Card 1/3

Organotin monomers and polymers ...

26290
S/190/61/003/008/003/019
B110/B220

precipitate (melting point 102°C) could be dissolved in organic solvents. 2) In the same way, tributyl-stannyl acrylate was obtained from hexabutyl stannous oxide and acrylic acid. 3) The triethyl-stannyl ester of cinnamic acid was obtained from cinnamic acid and hexaethyl stannous oxide according to the equation $(C_2H_5)_6Sn_2O + 2\ C_6H_5{=}CHCOOH \longrightarrow 2\ (C_2H_5)_3SnOCOCH{=}CHC_6H_5 + H_2O$. The organotin compounds obtained polymerize easily, and form transparent solid copolymers with styrene and methyl methacrylate. The thermomechanical properties of some polymers and copolymers are shown in Fig. 2. There are 2 figures and 3 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut plasticheskikh mass (Scientific Research Institute of Plastics)

SUBMITTED: September 1, 1960

Card 2/3

26291
S/190/61/003/008/004/019
B110/B220

15.8150

AUTHORS: Shostakovskiy, M. F., Kotrelev, V. N., Kuznetsova, G. I., Kalinina, S. P., Layne, L. V., Borisova, A. I.

TITLE: Studies on the synthesis and conversions of organotin monomers and polymers. V. Study of the formation of organotin polymers as a function of the polymerization conditions, and some physicochemical properties of organotin polymers

X

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 8, 1961, 1131-1134

TEXT: The present study deals with the yield in polymers of triethylstannyl methacrylate and acrylate as a function of polymerization time, temperature, initiation, and concentration. Benzoyl peroxide, azoisobutyric acid dinitrile, or triethyl-benzyl ammonium chloride served as initiators. The results are shown in Fig. 1. The composition of the copolymer from triethyl-stannyl methacrylate and methyl methacrylate was studied for initial molar ratios of the components of 1:1, 1:4, and 1:12. At an initial

Card 1/5

22517

S/062/61/000/004/006/008
B118/B208

5.3700 2209

AUTHORS: Shostakovskiy, M. F., Komarov, N. V., Kuznetsova, V. P., and Igonina, I. I.

TITLE: Study in the field of synthesis and conversions of unsaturated organosilicon compounds. 1. Esterification of primary and tertiary γ-silicon-containing acetylene alcohols by adipic acid

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 4, 1961, 699-703

TEXT: The authors studied the esterification of primary and tertiary γ-silicon-containing acetylene alcohols with adipic acid. This esterification was accomplished by direct reaction of the alcohols with adipic acid, and by reaction of these alcohols, or their magnesium derivatives, with adipic acid chloride. The esterification of the primary γ-silicon-containing acetylene alcohols with adipic acid without catalysts takes place either to form the acid adipic ester:

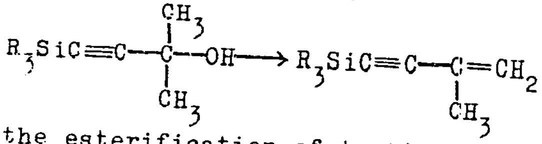
$R_3SiC{\equiv}C\text{-}CH_2OH + HOOC(CH_2)_4COOH \rightarrow R_3SiC{\equiv}C\text{-}CH_2OOC(CH_2)_4COOH$, where

Card 1/4

$R = CH_3$, C_2H_5, and C_6H_5, or to form the neutral adipic ester:

$$2R_3SiC \equiv C{-}CH_2OH + HOOC(CH_2)_4COOH \rightarrow R_3SiC \equiv C{-}CH_2OOC(CH_2)_4COOCH_2C \equiv CSiR_3,$$

where $R = CH_3$ and C_6H_5, depending on the conditions and the quantitative ratio of the components. This method is, however, not applicable to the esterification of tertiary γ-silicon-containing acetylene alcohols, since the reaction of these alcohols with adipic acid, with or without acid catalysts (such as boric acid etc.) gives rise to dehydration of the initial alcohols with formation of the corresponding silicon vinyl acetylene hydrocarbons:



$$R_3SiC \equiv C{-}C(CH_3)_2{-}OH \rightarrow R_3SiC \equiv C{-}C(CH_3){=}CH_2 + H_2O,$$

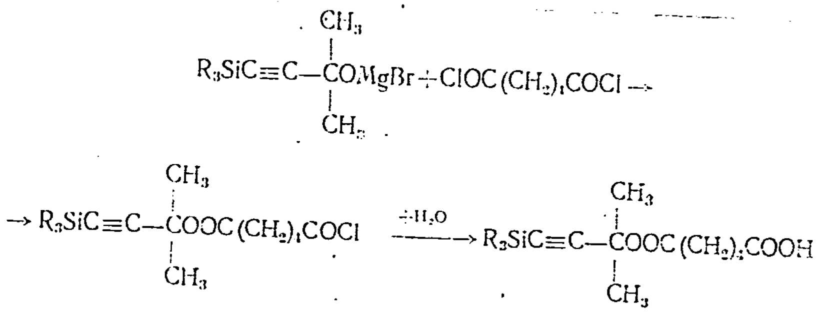
where $R = CH_3$ and C_2H_5. Also the esterification of tertiary γ-silicon-containing acetylene alcohols by their reaction with adipic acid chloride in the presence of pyridine as well as the ester interchange of these alcohols with dimethyl adipate under the action of sodium ethylate were unsuccessful. The synthesis of

22517

Study in the field...

S/062/61/000/004/006/008
B118/B208

acid and neutral esters of tertiary γ-silicon-containing acetylene alcohols was accomplished by reaction of magnesium alcoholates with adipic acid chloride



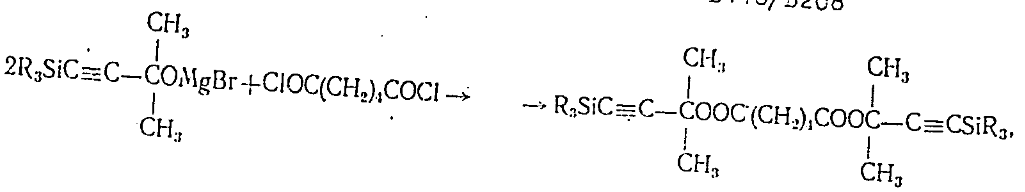
$$R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}OMgBr + ClOC(CH_2)_4COCl \rightarrow$$

$$\rightarrow R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}OOC(CH_2)_4COCl \xrightarrow{+H_2O} R_3SiC\equiv C-\overset{CH_3}{\underset{CH_3}{C}}OOC(CH_2)_4COOH$$

Card 3/4

Study in the field...

22517
S/062/61/000/004/006/008
B118/B208



$$2R_3SiC{\equiv}C{-}\underset{CH_3}{\overset{CH_3}{C}}OMgBr + ClOC(CH_2)_4COCl \rightarrow R_3SiC{\equiv}C{-}\underset{CH_3}{\overset{CH_3}{C}}OOC(CH_2)_4COO\underset{CH_3}{\overset{CH_3}{C}}{-}C{\equiv}CSiR_3,$$

где $R=CH_3$ и C_2H_5.

There are 7 Soviet-bloc references.

ASSOCIATION: Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR (Irkutsk Institute of Organic Chemistry of the Siberian Branch of the Academy of Sciences USSR)

SUBMITTED: December 15, 1959

Card 4/4

22518

S/062/61/000/004/007/008
B118/B208

5.3700 2209

AUTHORS: Shostakovskiy, M. F., Kaliberdo, L. M., and Komarov, N. V.

TITLE: Studies in the field of synthesis and conversions of unsaturated organosilicon compounds. 2. Cyanoethylation of tertiary γ-silicon-containing acetylene alcohols

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 4, 1961, 703-705

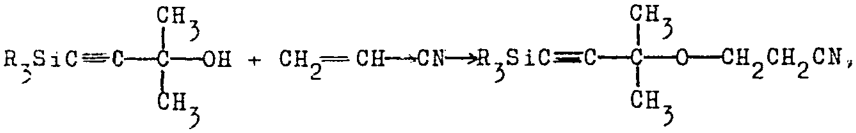
TEXT: Cyanoethylation of secondary and tertiary silicon-containing alcohols has as yet not been described, unlike that of the primary ones. There are also no data available on the reaction of acrylonitrile with silicon-containing acetylene alcohols, in spite of the considerable importance of the cyanoethylation of acetylene alcohols and glycols. The authors therefore studied the cyanoethylation of tertiary γ-silicon-containing acetylene alcohols:

Card 1/3

22518

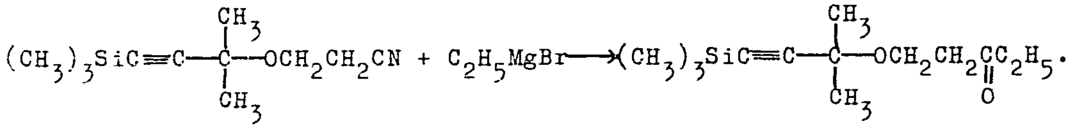
S/062/61/000/004/007/008
B118/B208

Studies in the field...



$$R_3SiC\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-OH + CH_2=CH-CN \rightarrow R_3SiC\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-O-CH_2CH_2CN$$

, where R = CH_3 and C_2H_5. This cyanoethylation of acetylene alcohols was carried out under the action of a 40% aquecus caustic potash solution and also of sodium methylate. The catalytic effect of caustic potash solution gave no β-cyanoethyl ethers. The application of sodium methylate permitted the synthesis of β-cyanoethyl ethers of the silicon-containing acetylene alcohols used (50-60% yields). The reaction is exothermic. Better yields are obtained by using benzene as the solvent. The reaction of the β-cyanoethyl ether of 4-trimethyl-silyl-2-methyl butyn-3-ol-2 with ethyl magnesium bromide gave, like several analogous cases, the corresponding silicon acetylene ketone according to the equation



$$(CH_3)_3SiC\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-OCH_2CH_2CN + C_2H_5MgBr \rightarrow (CH_3)_3SiC\equiv C-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-OCH_2CH_2\underset{\underset{O}{\|}}{C}C_2H_5$$

. The

Card 2/3

22518

Studies in the field...

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B118/B208

presence of a carbonyl group in this compound was confirmed by the formation of 2,4-dinitro-phenyl hydrazone. In addition to the formation of the organosilicon ketone according to this equation also a cleavage of the β-cyanoethyl ether takes place to give 4-trimethyl-silyl-2-methyl-butyn-3-ol-2. Other conversions of the β-cyanoethyl ethers of tertiary γ-silicon-containing acetylene alcohols will be described in the following report. There are 8 references: 4 Soviet-bloc and 4 non-Soviet-bloc. The two references to English-language publications read as follows: R. Cookson, F. Mann, J. Chem. Soc. 618 (1947), 67 (1949); S. Nozakura, S. Konotsune, Bull. Chim. Soc. Japan 29, 322, 326 (1956).

ASSOCIATION: Institut khimii Vostochno-Sibirskogo filiala Sibirskogo otdeleniya AN SSSR (Institute of Chemistry of the Eastern Siberian Branch of the Siberian Department, Academy of Sciences USSR)

SUBMITTED: December 15, 1959

Card 3/3

[redacted]

Chemical conversions of unsaturated and high molecular weight compounds. Report No. 18: Polymerization and copolymerization of divinyl tartrate and methyl methacrylate. Izv.AN SSSR Otd.khim.nauk no.4: 706-709 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Tartaric acid) (Methacrylic acid)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.

Diene synthesis with the participation of vinyl ethers. Report No. 5: Reaction of divinyl ether with hexachlorocyclopentadiene. Izv.AN SSSR Otd.khim.nauk no.4:709-714 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ether) (Cyclopentadiene)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; PLOTNIKOVA, G.I.

Study of diacetylene derivatives. Report No.8: Reactions of ethynyl vinyl and thioethynyl vinyl ethers with carbonyl compounds. Izv.AN SSSR.Otd.khim.nauk no.5:905-909 My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ether) (Carbonyl compounds)

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; ZELENSKAYA, M.G.

Lactones and lactams. Reprot No.19: Synthesis of ethers and esters of N-(β-hydroxyethyl)pyrrolidinone. Izv.AN SSSR.Otd.khim.nauk no.5: 910-913 My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Pyrrolidinone)

15.8102 2209

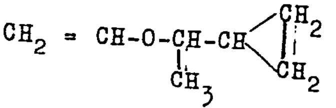
23591
S/062/61/000/005/008/009
B118/B220

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., Meshcheryakov, A. P., and Glukhovtsev, V. G.

TITLE: Polymerization of the vinyl ether of methyl cyclopropyl carbinol

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5, 1961, 924 - 927

TEXT: In Ref. 1 (B. A. Zakharov et al., Dokl. AN SSSR, 122, no. 5, 814 (1958)), it has been stated that the double bond of the vinyl ethers has an increased nucleophilic character which manifests itself in various addition reactions, transformations, and especially in the polymerization reaction. For the study of the conditions of polymerization of the compounds $CH_2 = CHOR$ (I), the vinyl ether of methyl cyclopropyl carbinol is of special interest:

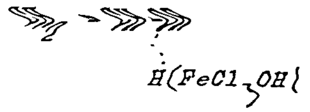


(II).

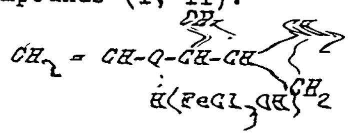
According to the rule of Markovnikov, the cyclopropyl group of this ether,
Card 1/3

as possible carrier of the propenyl group, is able to add various polar compounds. Moreover, this ether may be of interest as test substance for the synthesis of different polymers in the polymerization and copolymerization reactions. The present paper describes the polymerization of the vinyl ether of methyl cyclopropyl carbinol in the presence of the initiators $FeCl_3$ and azonitrile isobutyric acid under optimum conditions for the polymerization of the vinyl alkyl ethers. It has been found that compound (II) shows higher reactivity during polymerization in the presence of a 5 % solution of iron perchloride (in dioxane) than vinyl alkyl ethers (I) under the same conditions. First of all, this is evident from the fact that the polymerization of the ether (II) begins at 0°C and the highest yield in polymer is obtained at a temperature of -17 to -20°C whereas other vinyl alkyl ethers polymerize at boiling temperature only. The reason for such diverging temperatures of polymerization is the different stability of the ozonium complexes of these compounds (I, II):

(III)



(IV)



23591
[redacted]
B118/B220

Polymerization of the...

Evidently, complex (IV) is of lower stability; its decomposition is effected at a low temperature resulting also in the formation of a polymer at lower temperature. The use of azonitrile isobutyric acid as initiator instead of $FeCl_3$ did not give any results. There are 3 Soviet-bloc references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry im. N. D. Zelinskiy, Academy of Sciences USSR)

SUBMITTED: October 12, 1960

Card 3/3

25039
S/062/61/000/006/001/010
B118/B220

5.3400

AUTHORS: Shorygin, P. P., Shkurina, T. N., Shostakovskiy, M. F., and Gracheva, Ye. P.

TITLE: Spectra and structure of vinyl ethers

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 6, 1961, 1011 - 1015

TEXT: A study has been made of the influence of various functional groups on the properties of vinyl compounds and on the state of the double bond C=C. In the case of vinyl ethers, the influence exerted by the alkoxy group upon the double bond becomes evident in chemical properties, such as increased reactivity in addition reactions, in hydrolysis, and in polymerization and copolymerization processes. Not much material is available in the literature with regard to the influence of the alkoxy group upon the strength of the double bond C=C and upon the optical properties. The present paper deals with studies concerning the Raman spectra and the ultraviolet absorption spectra in vacuo for a series of vinyl ethers containing alkyl, naphthene and aromatic radicals. Most vinyl ethers

X

Card 1/6

have several lines in the frequency range of the stretching vibrations C=C. The splitting depends on the branchings of the alkyl group and on the presence of an α-substituent. The influence of temperature upon the intensity of the lines $\sim$1610 and $\sim$1640 cm^{-1} of vinyl butyl ether indicates their relation to the two rotational isomers. The influence of the group OAlk on $\omega_{C=C}$ may be regarded qualitatively as a tendency to reduce the frequency. The wavelength of the first absorption band and the intensity of the C=C line in the Raman spectra are greater for vinyl ethers than for alkenes of similar structure. The influence of solutions and temperature on the structure of the C=C band was studied. Thus, the geometric configuration of the molecules of vinyl ethers may be important to both the physical and chemical properties. The Raman spectra were taken with the ИСП-67 (ISP-67) spectrograph with the Hg line 4358Å. The absorption spectra were taken with spectrophotometers of types СФ-4 (SF-4) and СП-41 (SP-41) with the assistance of V. A. Petukhov. There are 2 figures, 1 table, and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The 1 reference to English-language publication reads as follows: Y. Mikawa, Bull. Chem. Soc. Japan 29, 110 (1956).

25039

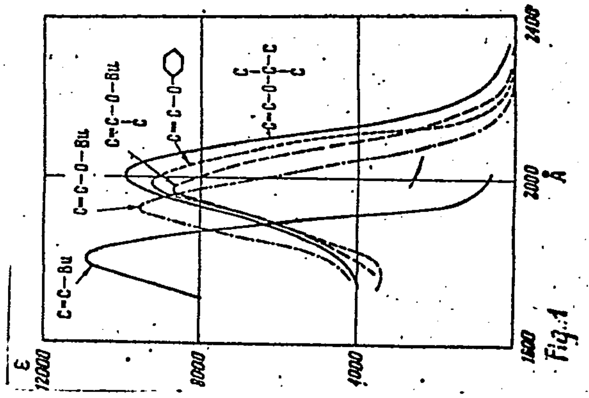
Spectra and structure of...

S/062/61/000/006/001/010
B118/B220

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: June 1, 1959

Fig. 1: Ultraviolet absorption spectra of octene-1 and vinyl ethers (solutions in heptane). Legend: bu-butyl group; -⬡-cyclohexyl group.



Card 3/6

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; ROGOVA, E.V.; KOLODKIN, F.L.;
IBRAGIMOV, F.

Lactones and lactams. Report 20: Reactions of N-(chloralkyl) lactams with alcohols. Izv.AN SSSR.Otd.khim.nauk no.6:1111-1116 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Lactams) (Alcohols)

SHOSTAKOVSKIY, M.F.; KUZNETSOV, N.V.; DUBOVIK, N.A.; ZIKHERMAN, K.Kh.

Synthesis of ethoxyacetalaldehyde and its chemical transformations.
Izv. AN SSSR. Otd.khim.nauk no.8:1495-1500 Ag '61.
(MIRA 14:8)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

(Acetaldehyde)

26405
S/062/61/000/008/010/010
B117/B206

15.8050

AUTHORS: Shostakovskiy, M. F., Sidel'kovskaya, F. P., Shapiro, E. S., and Ogibina, T. Ya.

TITLE: β-(N-pyrrolidonyl) ethylvinyl sulfide

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 8, 1961, 1524-1526

TEXT: The authors investigated the vinylation of the previously prepared N-(β-mercaptoethyl) pyrrolidone (Ref. 1: M. F. Shostakovskiy, F. P. Sidel'kovskaya, E. S. Shapiro, T. Ya. Ogibina, Izv. AN SSSR. Otd. khim. n., 1958, 68). The reaction was carried out in dioxane medium with a 2- to 4-fold acetylene excess. A rotating autoclave (250 ml) fitted with manometer, thermocouple, and automatic temperature control was used. Vinylation proceeds smoothly and with good yield (81.8 %) in the presence of 10 % caustic potash. β-(N-pyrrolidonyl) ethylvinyl sulfide (I) is a colorless, weakly smelling, viscous liquid, practically soluble in any organic solvent. Some of its conversions were investigated: addition of thiols, polymerization, and copolymerization. The addition

Card 1/4

26405
S/062/61/000/008/010/010
B117/B206

β-(N-pyrrolidonyl) ethylvinyl sulfide

of the thiols is practicable during radical initiation (azoisobutyric acid dinitrile). Corresponding sulfides are formed thereby with good yield. Addition of ethyl-thiol produces 88 % β-pyrrolidonyl ethyl-β-ethyl mercapto ethyl sulfide with boiling point 117-120°C (0.015 mm); n_D^{20} 1.5440; d_4^{20} 1.1222. During heating the synthetized monomer (I) undergoes thermal polymerization. This is accelerated by addition of azoisobutyric acid dinitrile. The new polymer is a transparent, almost colorless, semisolid product. It is soluble in water, alcohol, benzene, and other common organic solvents with the exception of diethyl- and petroleum ether. The monomer (I) does not only form homopolymers, but participates also in the copolymerization with other vinyl monomers. (I) was found to be extremely active. According to its activity, it is similar to acrylonitrile and methyl acrylate. It is of much higher reactivity than vinyl acetate and vinyl pyrrolidone. Polymerization and copolymerization occurred under standard conditions: in ampullas at 60°C within 100 hr in the presence of azoiso butyric acid dinitrile. Diethyl ether was used for the precipitation of polymers and copolymers. Petroleum ether was only used for copolymers of (I) and methyl acrylate.

Card 2/4

26405
S/062/61/000/008/010/010
B117/B206

β-(N-pyrrolidonyl) ethylvinyl sulfide

The results are listed in the Table. There are 1 table and 5 references: 4 Soviet and 1 non-Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SUBMITTED: February 22, 1961

Table: Properties of the polymers produced. Legend: 1) Designation; 2) appearance; 3) yield, %; 4) determined S, %; 5) content of (I) links in the copolymer, mole%; 6) solubility; 7) acetone; 8) dimethyl formamide; 9) sulfuric ether; 10) petroleum ether; 11) homopolymer of vinyl sulfide (I); 12) copolymer of methylacrylate and (I); 13) copolymer of (I) and vinyl acetate; 14) copolymer of (I) and vinyl pyrrolydone; 15) copolymer of (I) and acrylonitrile; 16) transparent, elastic mass; 17) transparent, semisolid product; 18) transparent, elastic product; 19) white, hard, brittle. *) for $C_8H_{13}ONS$ 18.72 % S were calculated. **) P = soluble; H = insoluble; P.orp. = restrictedly soluble.

Card 3/4

SHORYGIN, P.P.; SHOSTAKOVSKIY, M.F.; PRILEZHAYEVA, Ye.N.; SHKURINA, T.N.;
STOLYAROVA, L.G.; GENICH, A.P.

Structure and spectra of vinyl sulfides. Izv. AN SSSR. Otd.khim.nauk no.9:1571-1577 S '61. (MIRA 14:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Vinyl sulfide--Spectra)

27495
S/062/61/000/009/011/014
B117/B101

5.3400

AUTHORS: Shostakovskiy, M. F., Kuznetsov, N. V., and Yang Che-Min

TITLE: Synthesis and transformations of new vinyl ether derivatives

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 9, 1961, 1685-1688

TEXT: The present work was undertaken as a part of the studies of synthetic methods for the preparation of new vinyl ether derivatives. In the course of it, several new 3-hydroxy-acrolein ethers and esters were prepared by the following reacticns.

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Card 1/5

27495

Synthesis and transformations ...

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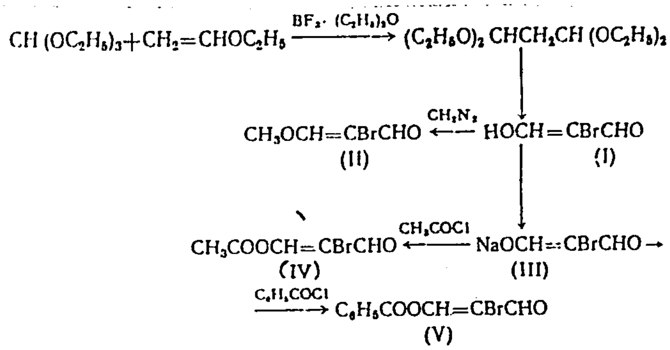
B117/B101

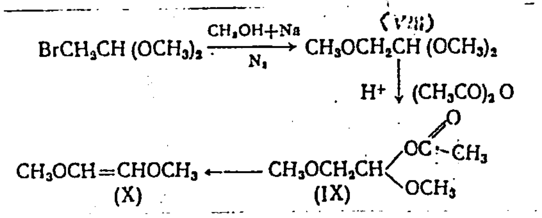


$$\begin{tikzcd}
 & CH(OC_2H_5)_3 + CH_2{=}CHOC_2H_5 \arrow[r, "BF_3\cdot(C_2H_5)_2O"] & (C_2H_5O)_2CHCH_2CH(OC_2H_5)_2 \arrow[d] \\
 & \underset{(II)}{CH_3OCH{=}CBrCHO} & \underset{(I)}{HOCH{=}CBrCHO} \arrow[l, "CH_2N_2"'] \arrow[d] \\
 & \underset{(IV)}{CH_3COOCH{=}CBrCHO} & \underset{(III)}{NaOCH{=}CBrCHO} \arrow[l, "CH_3COCl"'] \arrow[r] & {} \\
 {} \arrow[r, "C_6H_5COCl"] & \underset{(V)}{C_6H_5COOCH{=}CBrCHO} &
\end{tikzcd}$$

The authors investigated whether these 3-hydroxy acrolein ethers and esters give the diene condensation. The ether (II) and esters (IV) and (V) obtained readily hydrolyze under the influence of water and atmospheric moisture. They consolidate on storage. Diene condensations of (II), (IV), and (V) with vinyl-butyl ether could not be realized, since the reaction products resinified completely, probably as a result of hydrogen bromide formation. Ethyl orthoformiate, however, reacts readily with dioxene in

Card 2/5

the presence of boron trifluoride etherate, yielding 2-ethoxy-3-diethoxymethyl -p-dioxane (VI) ($C_{11}H_{22}O_5$, b.p. 135°-137°C (20 mm Hg), n_D^{20} 1.4337). This may be hydrolyzed to 2-formyl p-dioxene (VII) ($C_5H_6O_3$, m.p. 40°-42°C), which is also a derivative of acrolein. This unsaturated aldehyde is highly hygroscopic and crystallizes in the form of its hydrate. Its cyclic structure is confirmed by the absence of a reaction with ferric chloride, as well as by analytical and spectroscopic data. The authors also studied synthetic methods for the preparation of 1,2-dimethoxy ethylene (X) which was obtained by the reactions:



Card 3/5

27495
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B117/B101

Synthesis and transformations ...

Starting from the acetal of bromo acetaldehyde the authors prepared 1,1,2-trimethoxy ethane (VIII) (b.p. 125°-126°C (741 mm Hg), n_D^{25} 1.3930) which on boiling with acetic anhydride in the presence of a trace of p-toluenesulfonic acid is transformed to the acylal (IX) (b.p. 64°-65°C (14 mm Hg), n_D^{20} 1.4055). On treating (VIII) with acetic anhydride and a drop of concentrated sulfuric acid, letting the mixture stand for 14 hr, and then treating it with ice water, with subsequent extraction and distillation, 1,2-dimethoxy-1-acetoxy ethane (IX) was obtained also. The reaction mixture obtained by boiling (IX) for 2 hr at 162°-165°C was slowly distilled from a Favorskiy flask. A mixture boiling at 71°-145°C was obtained. The reaction product was washed with concentrated sodium carbonate solution, dried over potassium carbonate and fractionally distilled, yielding a mixture of isomers in the ratio 3.5 : 1 (1,2-dimethoxy ethylene (X), b.p. 97°-99°C, n_D^{20} 1.4184 and an isomer b.p. 103°C, $n_D^{20.5}$ 1.4204). The yield of 1,2-dimethoxy ethylene did not exceed 20%. The study of these isomers is being continued. There are 14 references: 3 Soviet and 11 non-Soviet. The four most recent references to English-

Card 4/5

28276
S/062/61/000/010/013/018
B106/B101

15 8113

AUTHORS: Shostakovskiy, M. F., Khomutov, A. M., and Khomutova, N. M.

TITLE: Reaction of polyvinyl alcohol with polymethacrylic acid

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1961, 1890 - 1891

TEXT: The activity of the hydroxyl groups of polyvinyl alcohol in the reaction with polymers containing functional groups with mobile hydrogen has hitherto not been studied. In this connection, the authors investigated the reaction between aqueous solutions of polyvinyl alcohol and polymethacrylic acid at room temperature without using a catalyst. The polyvinyl alcohol contained 1.5% of acetate groups, and had a specific weight of 1.259. Data of methacrylic acid: boiling point 160°C, n_D^{20} 1.4313, d_4^{20} 1.0153, acid number 650 mg of KOH. Methacrylic acid was polymerized in the presence of 0.2% of benzoyl peroxide, the polymer reprecipitated from its methanolic solution with benzene several times, until no double bond could be proved any longer. Then, polymethacrylic

X

Card 1/4

28276

Reaction of polyvinyl alcohol...

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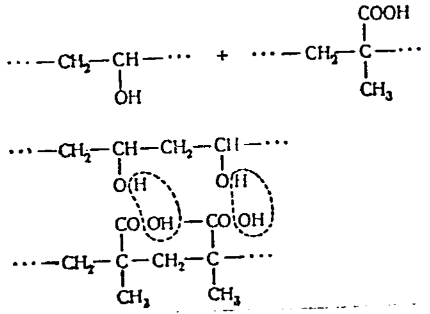
B106/B101

acid was dried up to a constant weight and finally analyzed. It contained 99.5% of carboxyl groups. In order to synthesize the polyester, 10% aqueous solutions of polyvinyl alcohol and polymethacrylic acid were mixed at room temperature. The polyester precipitate deposited after some minutes was washed with water up to a neutral reaction and then dried up to a constant weight. The content of unused polymethacrylic acid in the filtrate was determined titrimetrically. To analyze the polyester, it was saponified with lye, and the content of carboxyl groups was determined titrimetrically. Then, the amount of polymethacrylic acid entering the composition of the polyester was calculated. The results are given in a table. The reaction in question was conducted at equimolecular ratios of the initial substances (referred to one link) or with an excess of one of the two reactants. In all cases, esterification was almost quantitative. The reaction can be observed well, since both polyvinyl alcohol and polymethacrylic acid are readily soluble in water, whereas the reaction product is not water-soluble and precipitates from the aqueous solution. The reaction follows the pattern:

Card 2/4

22276 S/062/61/000/010/013/018
B106/B101

Reaction of polyvinyl alcohol...



The resulting new polyesters belong to the so-called cross-linked high-molecular compounds. They are insoluble in water and organic solvents, and carbonize on heating without melting. In order to clarify the structure of the polyesters, they were subjected to alkaline hydrolysis. In aqueous sodium hydroxide, hydrolysis is complete and yields polyvinyl alcohol and the sodium salt of polymethacrylic acid. An analogous experiment with an aqueous solution of polyvinyl alcohol was carried out in order to study the course of reaction between polyvinyl alcohol and monomeric methacrylic acid. In this case, the reaction is considerably slower. It was found that the esterification of polymethacrylic acid with polyvinyl alcohol in aqueous solution is almost quantitative. [Abstracter's note: Essentially complete translation.] There are 1 table and 3 Soviet references.

Card 3/4

2 270 S/062/61/000/010/013/018
B106/B101

Reaction of polyvinyl alcohol...

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: April 3, 1961

① Исходные вещества	② Молярное соотношение	③ Выход, % от теорет.	Содержание звеньев полиметакриловой кислоты ④		Количество полиметакриловой кислоты, ⑤ не вошедшей в реакцию, %
			теорет., % ⓐ	практ., % ⓑ	
Поливиниловый спирт ⑥	1	99,0	61,6	59,0	1,07
Полиметакриловая кислота ⑦	1				
Поливиниловый спирт ⑥	0,5	91,6	61,6	58,6	41,6
Полиметакриловая кислота ⑦	1				
Поливиниловый спирт ⑥	1	94,5	61,6	59,4	0,97
Полиметакриловая кислота ⑦	0,5				

Legend to the Table: (1) initial substances; (2) molar ratio; (3) yield, % of theoretical value; (4) content of polymethacrylic acid links; (a) theoretical value, %; (b) practical value, %; (5) amount of polymethacrylic acid which did not react, %; (6) polyvinyl alcohol; (7) polymethacrylic acid.

Card 4/4

SHOSTAKOVSKIY, M.F.; DENISENKO, V.P.; GORBAN', A.K.

Synthesis of hexamethylenediamine biquaternary ammonium salts.
Izv.AN SSSR.Otd.khim.nauk no.10:1907-1908 O '61. (MIRA 14:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ammonium compounds) (Hexanediamine)

GASTILOVICH, Ye.A.; SHIGORIN, D.N.; GRACHEVA, Ye.P.; CHEKULAYEVA, I.A.;
SHOSTAKOVSKIY, M.F.

Investigating the nature of the complexes and derivatives of acetylene by the method of infrared absorption spectra. Opt.i spektr. 10 no.5:595-599 My '61. (MIRA 14:8)
(Acetylene—Spectra)

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; VOLKOV, A.N.

Vinyl compounds in diene synthesis. Report No.8: Diene synthesis of vinyl ethers and thio ethers with anthracene. Izv.AN SSSR.Otd.-khim.nauk no.11:2072-2074 N '61. (MIRA 14:11)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ethers) (Sulfides) (Anthracene)

29522
S/062/61/000/011/009/012
B103/B147

15-8113

AUTHORS: Shostakovskiy, M. F., Khomutov, A. M., Chekulayeva, I. A., and Khomutova, N. M.

TITLE: Synthesis and polymerization of diallyl tartrate

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 11, 1961, 2075 - 2077

TEXT: Synthesis and polymerization of diallyl tartrate (DAT) were studied. This was done to clarify the effect of its structure on the course of polymerization as well as the polymer properties, in the case where DAT contains further functional groups (OH). The synthesis was effected by esterification of tartaric acid with allyl alcohol in the presence of hydroquinone and sulfuric acid at 70 °C in benzene solution. In order to establish the polymerization conditions of DAT, different quantities of the following initiators were used: (a) benzoyl peroxide (Bz_2O_2), and (b) azoisobutyric acid dinitrile, the temperature (60, 95, and 125 °C) as well as the reaction time (5 - 21 hr) being varied. It has been found that

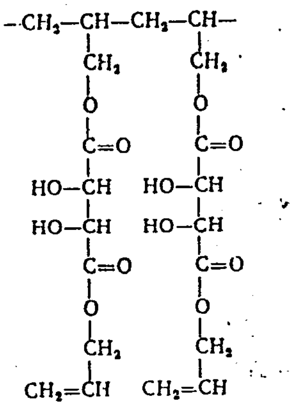
Card 1/4

29522
S/062/61/000/011/009/012
B103/B147

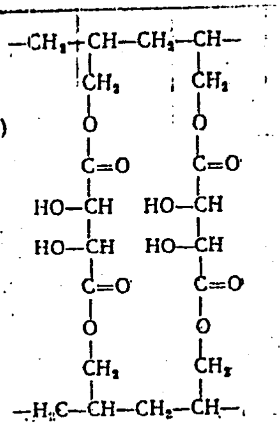
Synthesis and polymerization...

either linear (I) or tridimensional (II) polymers are formed in different quantitative proportions depending on the reaction conditions:

(I)



(II)



Card 2/4

29522
S/062/61/000/011/007/012
B104/B147

Synthesis and polymerization

Table 1 shows the effect of Bz_2O_2 as initiator on the polymerization of DAT. The polymers have a predominantly cross-linked structure in the presence of 4.5 - 6% of Bz_2O_2. Increase of temperature and heating time have the following effects: with 6% of Bz_2O_2, DAT is practically not polymerized within 5 hr at 60°C, whereas a solid and insoluble polymer is formed at 95°C (yield 57%). Such a polymer forms at 60°C only after heating for 21 hr. Polymerization with 6% of Bz_2O_2 at 125°C for 18 hr gave the best results: 98% of a solid transparent polymer which cannot be charged by static electricity. Its heat resistance is 294°C. (b) is inferior to Bz_2O_2 as initiator. At 95°C its use yields only 5% of viscous polymer within 18 hr. DAT is less active in polymerization than fumaric and maleic esters. This might be due to the OH groups contained in DAT. There are 2 tables and 6 references: 4 Soviet and 2 non-Soviet. The references to English-language publications read as follows: Tsunao Araki, Hiroko Jida, Repts Govt. Chem. Ind. Research Inst. Tokyo, 47, 95 (1952); Chem. Abstrs., 47, 10889 (1953).

Card 3/4

29522
S/062/61/000/011/009/012
B103/B147

Synthesis and polymerization.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: June 12, 1961

Table 1. Polymerization of diallyl tartrate with different quantities of Bz_2O_2 at 95°C within 5 hr

Legend (1) Bz_2O_2 content, %; (2) fractionated quantity of polymer, g; (3) polymer yield, %; (4) total; (5) tridimensional; (6) linear; (7) quantity of nonpolymerized monomer, %; (8) content of tartaric acid in the tridimensional polymer, %; (9) real; (10) theoretical

Card 4/5

SHOSTAKOVSKIY, M.F.; BOGDANOVA, A.V.; USHAKOVA, T.M.

Vinyl compounds in diene synthesis. Report No.9: Some properties of diene synthesis adducts with vinyl sulfides. Izv. AN SSSR Otd.khim.nauk no.12:2217-2222 D '61. (MIRA 14:11)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Vinyl compounds)

30166
S/062/61/000/012/007/012
B117/B147

15.8070 2209

AUTHORS: Shostakovskiy, M. F., Khomutov, A. M., and Sidel'kovskaya, F. P.

TITLE: Copolymerization of vinyl pyrrolidone with methyl methacrylate and acrylonitrile

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 12, 1961, 2222 - 2225

TEXT: The copolymerization of N-vinyl pyrrolidone with methyl methacrylate and acrylonitrile in various molar ratios up to radical conversion was examined. Polymerization occurred within 100 hr in the presence of dinitrile of azoisobutyric acid (0.2%) at 60 ± 1°C. During copolymerization of the above monomers, copolymers were formed in which the number of vinyl pyrrolidone groups increased with an increase in concentration of the vinyl pyrrolidone in the reaction medium while the yields slightly decreased. The relative activity of radicals of the examined monomers was studied on the copolymerization with lesser degree of conversion. For the evaluation of this activity, the copolymerization constants r_1 and r_2

Card 1/3

30166

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Copolynerization of vinyl pyrrolidone...

were determined with an accuracy of ± 0.02 using the integral equation of Mayo and Lewis (Ref. 3, see below). A comparison of the relative activities showed that methyl methacrylate was more active with respect to vinyl pyrrolidone radicals. To clarify the effect of vinyl pyrrolidone groups on the solubility of copolymers with acrylonitrile groups, the solubility of the copolymers in several organic solvents was examined at room temperature and during heating. It was found that copolymers of vinyl pyrrolidone and methyl methacrylate were soluble in acetone, ethanol, butanol, benzene, dioxane, chloroform, ethyl cellosolve, ethyl acetate, and butyl acetate. Copolymers of vinyl pyrrolidone and acrylonitrile were not soluble in the above-mentioned compounds. They dissolve in pyrrolidone, vinyl pyrrolidone, butyl pyrrolidone, butyrolactone, β-(N-pyrrolidonyl)-ethyl formiate, β-(N-pyrrolidonyl)-ethyl acetate. In the above-mentioned organic compounds, the homopolymer of acrylonitrile is insoluble. There are 2 figures, 5 tables, and 5 references: 2 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: Ref. 1: U. S. Pat. 2667473 (1954); U. S. Pat. 2676949 (1954); U. S. Pat. 2497705 (1950); U. S. Pat. 2713573 (1955); U. S. Pat. 2739588 (1956); R. M. Rike, D. L. Baily, J. Polymer Sci. 22, no. 100, 55

Card 2/3

SHOSTAKOVSKIY, M.F.; KALABINA, A.V.; KOMAROV, N.V.

Synthesis and transformations of vinyl aryl ethers. Report No.1: Synthesis and properties of vinyl ether of p-sec-propylphenol. Izv. Fiz.-khim. nauch.-issl. inst. Irk. un. 5 no.1:215-224 '61. (MIRA 16:8)

(Ethers) (Phenol)

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.

Medicinal preparations based on polymers. Med. prom. 15 no.3:6-13 Mr '61. (MIRA 14:5)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(POLYMERS) (DRUGS)

SOSTAKOVSKI, M. F. [Shostakovskiy, M. F.]; SIDELKOVSKAIA, F. P.
[Sidel'kovskaya, F. P.]

Drugs on the polymer basis. Analele chimie 16 no.4:21-30 O-D '61.

(Drugs) (Polymers and polymerization)

SHOSTAKOVSKIY, M.F.; GRACHEVA, Ye.P.; KUL'BOVSKAYA, N.K.

Methods for synthesizing and properties of substituted vinyl ethers and substituted vinyl sulfides. Usp. khim. 30 no. 4:493-516 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR. (Sulfides) (Ethers)

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S/079/61/031/002/018/019
B118/B208

AUTHORS: Shostakovskiy, M. F. and Vlasov, V. M.

TITLE: Synthesis of trialkyl vinyl hydroxy silanes from acetylene and silanols

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 2, 1961, 683

TEXT: Vinyl ethers containing silicon recently raised the interest of chemists being applicable as monomers to the synthesis of high-molecular compounds. The authors were the first to synthesize trialkyl vinyl hydroxy silanes, and to describe their properties (Ref. 1). Other authors showed in Ref. 2 that trialkyl vinyl hydroxy silanes may be synthesized by another method. As the attempts of the afore-mentioned research workers of synthesizing these compounds by the method of direct vinylation according to the reaction of Favorskiy-Shostakovskiy were unsuccessful, the incorrect conclusion was drawn that this reaction be not applicable to the synthesis of trialkyl vinyl hydroxy silanes (Ref. 3). Thorough investigations of the conditions to be observed in direct vinylation carried out by the authors disclosed that the main hindrance in this reaction, under the conditions of

Card 1/2

89522

Synthesis of trialkyl ... S/079/61/031/002/018/019
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synthesis, was the high tendency of silanols toward conversion to disiloxane. To suppress this undesirable conversion, they suggested the application of excess acetylene. The synthesis of trialkyl vinyl hydroxy silanes was rendered possible according to equation

$$(R)_3SiOH + nHC \equiv CH \longrightarrow (R)_3Si - O - CH = CH_2 + n - 1HC \equiv CH.$$

[Abstracter's Note: This is a complete translation of the original paper.] There are 3 Soviet-bloc references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: September 18, 1960

Card 2/2

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B118/B207

5.3630 2209, 1287, 1153

AUTHORS: Shostakovskiy, M. F., Shmonina, L. I., and Guseynov. I. I.

TITLE: Synthesis of 1-alkoxy-2-oxy-dialkoxy- and 1-alkoxy-2-oxy-bis-dialkyl aminophosphine-3-chlorobutadiene-1,3

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 3, 1961, 734-736

TEXT: The new class of 1,2,3-substituted butadienes (I) previously described by the authors (Ref. 1: ZhOKh, 30, 2836 (1960)), which was obtained by reacting vinyl-ethinyl alkyl ether with PCl_5, contains active chlorine atoms in its group of oxychloro phosphines:

$$ROCH{=}CH-C{=}CH + 2PCl_5 \longrightarrow [ROCHCl-CHPCl_4-C{\equiv}CH \cdot PCl_5] \xrightarrow{SO_2}$$

$$\longrightarrow ROCH{=}CPOCl_2-CCl{=}CH_2.$$

(I)

The reaction of butadienes (I) with compounds containing a mobile hydrogen atom (alcohols, amines, mercaptanes) may play a

Card 1/3

Synthesis of ...

21082
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B118/B207

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considerable role in the synthesis of valuable polymers, if the halogen atoms of the phosphine group are substituted by different radicals. In the reaction of compounds (I) with alcohols, e. g., the chlorine atoms of the phosphine group are easily substituted by alkoxy groups under the formation of 1-alkoxy-2-oxy-dialkoxy phosphine-3-chlorobutadiene-1,3 (II):

$ROCH{=}CPOCl_2{-}CCl{=}CH_2 + 2R'OH \longrightarrow ROCH{=}CPO(OR')_2{-}CCl{=}CH_2$ (II). This reaction proceeds easily already at 30-35°C in anhydrous benzene, in the presence of pyridine. The yellowish liquids obtained have a weak odor and are more stable than the initial butadienes (I) and may be preserved in sealed ampoules. Compounds (I) react with dialkyl amines in the same way. In this case, the reaction proceeds in anhydrous petroleum ether at -3°C, in the presence of excess dialkyl amine. In analogy to the compounds (I) and (II), the resulting 1-alkoxy-2-oxy-bis-dialkyl aminophosphine-3-chlorobutadienes-1,3 are assigned the structure $ROCH{=}CPO(NR'_2)_2{-}CCl{=}CH_2$ (III). They are dense, yellowish liquids, which become darker when exposed to air. To confirm the previously assumed structure of 1,2,3-substituted butadienes (I), their Raman spectra were examined. The oscillation frequency of the C-Cl bond in the grouping $-CCl{=}CH_2$ was found to conform to formula (I),

Card 2/3

21082

Synthesis of ...

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and the compounds studied revealed a rotational isomerism at the single C—C and C—P bonds, as well as a geometrical isomerism at the C═C double bond which follows the C—P bond. The infrared spectra of some compounds (II) showed an absorption band 1408—1400 cm-1 which corresponds to a vinyl group ($=CH_2$) in final position, which fact is also in agreement with the structure of 1,2,3-substituted butadienes of these compounds and spectroscopic data presented in Ref. 1. There are 4 Soviet-bloc references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences USSR)

SUBMITTED: April 21, 1960

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Card 3/3

SHOSTAKOVSKIY, M.F.; RABINOVICH, M.S.; LEVITOV, M.M.; VERKHOVTSEVA, T.P.; PREOBRAZHENSKAYA, Ye.V.; KULIKOVA, G.N.; KALINOVSKIY, O.A.

Synthesis of the precursous and fragments of antibiotics. Part 4: Thioglycolic acid derivatives. Zhur.ob.khim. 31 no.5:1453-1458 My '61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(Acetic acid) (Antibiotics)

KOSTROMINA, O.Ye.; SHOSTAKOVSKIY, M.F.; VASIL'YEVA, N.Ye.

Synthesis of the precursors and fragments of antibiotics. Part 5: Synthesis of di- and trihaloderivatives of cyclohexenecarboxylic acid. Zhur.ob.khim. 31 no.5:1458-1462 My '61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(Cyclohexenecarboxylic acid)
(Antibiotics)

SHOSTAKOVSKIY, M.F.; VORONKINA, T.M.; SIDEL'KOVSKAYA, F.P.

Synthesis of the precursors and fragments of antibiotics. Part 6: Derviatives of lactam-containing mercaptocetic acid. Zhur.ob.khim. 31 no.5:1463-1465 My '61. (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov.
(Acetic acid) (Antibiotics)

SHOSTAKOVSKIY, M.F.; PRILEZHAYEVA, Ye.F.; AZOVSKAYA, V.A.; YANSONS, I.;
YANSONS, S.

Diene syntheses with bivinyl sulfur-containing dienophiles.
Zhur.ob.khim. 31 no.6:2079-2080 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii AN SSSR.
(Dienophiles) (Butadiene)