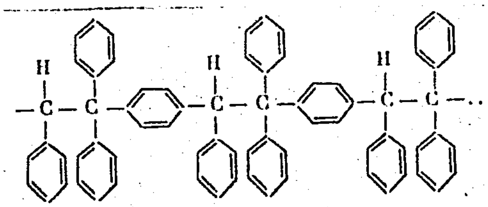
27570
S/190/61/003/009/005/016
B110/B101

(M) of 10,000-900,000, depending on the molar ratio. $[\eta] = 2.18 \cdot 10^{-3} M^{0.328}$. The following reactions take place: $(CH_3)_3COOC(CH_3)_3 \longrightarrow 2(CH_3)_3CO^{\cdot}(R^{\cdot})$; $(CH_3)_3CO^{\cdot} \longrightarrow (CH_3)_2CO + CH_3^{\cdot}(R^{\cdot})$. The radicals react with the hydrocarbons:

$$(C_6H_5)_2CH_2 + R^{\cdot} \rightarrow RH + (C_6H_5)_2\dot{C}H; \quad 2(C_6H_5)_2\dot{C}H \rightarrow HC(C_6H_5)_2CH(C_6H_5)_2 \xrightarrow{R^{\cdot}} \dot{C}(C_6H_5)_2 \rightarrow H[C(C_6H_5)_2]_2H \rightarrow HC(C_6H_5)_2[C(C_6H_5)_2]_n - \cdots C(C_6H_5)_2H \quad (1).$$

The resultant polydiphenyl methylene (PDPM) (I) does not decompose to free radicals in the presence of diphenyl picryl hydrazine, and is stable to oxidants (HNO_3), since the structure of tetraphenyl ethane (TPE) which is probably formed initially does not permit the formation of stable radicals. Rearrangements might take place according to



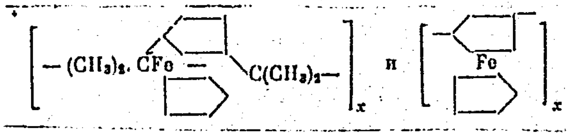
(II)

and

$$HC(C_6H_5)_2CH(C_6H_5)_2 \xrightarrow{\dot{R}} HC(C_6H_5)_2\dot{C}(C_6H_5)_2 \xrightarrow{\cdot CH_3}$$
$$HC(C_6H_5)_2C(CH_3)(C_6H_5)_2 \dashrightarrow (C_6H_5)_2C=CH_2 + (C_6H_5)_2CH_2;$$
$$(C_6H_5)_2C=CH_2 \rightarrow -C(C_6H_5)_2-CH_2-C(C_6H_5)_2-CH_2- \qquad \text{(III)}.$$

The repeating unit in I and II is: $C_{13}H_{10}$, in III: $C_{14}H_{12}$. When comparing the IR spectra of the polymers from DPM, TPE, tetraphenyl ethylene, and 1,1-diphenyl ethylene, the absorption maximum characteristic of 1,4-substituted benzene (833-840 cm^{-1}) was found to be absent in PDPM. Structure II is therefore not possible. III was also excluded since the maximum (760 cm^{-1}) characteristic of the C_6H_5-C-CH_2 configuration was absent as well. The PDPM structure according to I is thus confirmed. The dependence of the yield on the molar ratio of PO to hydrocarbon indicated an almost complete consumption of the first peroxide mole for the dimerization (A) of the total DPM to TPE (90% yield). At a ratio of 2 : 1 the polymer yield (B) is constant (50%). This accounts for the change in viscosity. In A, TPE is formed (melting point $209-211^{\circ}C$, i.e., higher than the reaction temperature), and viscosity considerably increases. In B, however, it decreases since the low-molecular polymers melt already at $180-190^{\circ}C$. The reaction of TPE which is first accelerated is then retarded by the formation of high-molecular polymers (melting point $200^{\circ}C$). The viscosity will be reduced toward the end of the reaction by adding a DPM-PO mixture to DPM; the yield increases. Peroxide admixture of >2 moles/mole of DPM graphically results in a steep ascent of the molecular weight which asymptotically approaches the ordinate. Assuming that the chain grows by doubling (dimer, tetramer, octamer), the following holds: $N_R = 2 - 2/n$, where N_R = number of free radicals/moles; n = polymerization coefficient. 1 mole of free radicals is formed on decomposition of TBPO. Maximum M is thus obtained for a PO consumption of 2 moles/mole of hydrocarbon. 0.68 mole tert-butoxyl radicals result from 1 mole PO (in the form of tert-butyl alcohol). 1.32 mole of radicals decomposes to give 1.32 mole acetone and 0.66 mole methane, as follows: (A) $(CH_3)_3CO^{\cdot} \xrightarrow{140^{\circ}C} (CH_3)_2CO + CH_3^{\cdot}$, and (B) $(CH_3)_3CO^{\cdot} \xrightarrow{190-200^{\circ}C} (CH_3)_2CO + CH_3-O-C-(CH_3)_3$. According to Yu. A. Aleksandrova, Huan Yü-li, A. P.

Pravednikov, S. S. Medvedev (Dokl. AN SSSR, 123, 1029, 1958), no methyl radicals are formed in (B) which takes place at higher temperatures. Isobutylene oxide results on initiation of the peroxide decomposition. The authors separated the fraction (51-53°C): isobutyl-methyl ether and isobutylene oxide. In the same way, they obtained polymers which dissolved in benzene. When using ditolyl methane instead of DPM, a polymer insoluble in benzene and p-cresol (melting point 180-240°C) with cross-linked structure is obtained in addition to linear polymers (melting point = 150-180°C, molecular weight = 2500). The elemental-organic polymers obtained from diisopropyl ferrocene, ferrocene, and triphenyl-tri-N-isopropyl borazol (TPNI) by means of polyrecombination showed IR absorption maxima at 820, 1000, and 1100 cm^{-1}, and, accordingly, structure



(A).

M = 1000-7000; they are dark-red powders soluble in benzene (softening point ~300°C). The electron paramagnetic resonance signal (line width

120 oe, 20°C) confirmed the existence of unpaired electrons (concentration 10^{21}/g polymer). Treatment of TPNI with TBPO yielded only a soluble, low-molecular polymer. Polyrecombination gives also polymers with aromatic rings in side and principal chains. A soluble copolymer was obtained by treating a mixture of DPM (0.1 mole) and DIPB (0.1 mole) with 0.25 mole TBPO; DIPB alone gave a nearly insoluble polymer. 2,5-dichloro-p-xylene gives a chlorinated analog of poly-p-xylene soluble in benzene. Cl in ortho-position to the CH_3 groups blocks them and prevents their participation in the formation of linear chains. Polyrecombination thus results in carbon chain polymers with aromatic rings in the principal chain, whose production is difficult. Gas chromatography of DPM was made on the X-2 (Kh-2) apparatus. There are 4 figures, 1 table, and 18 references: 6 Soviet and 12 non-Soviet. The three most recent references to English-language publications read as follows: Ref. 7: G. A. Russel, J. Amer. Chem. Soc., 78, 1047, 1956; Ref. 9: J. H. Brook, Trans. Faraday Soc., 53, 327, 1957; Ref. 10: K. M. Johnston, G. H. Williams, Chem. and Chem. Ins. 1958, No. 11, 328.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)

2209, 2409, 1372

21580
S/190/61/003/009/015/016
B124/B101

15.8000

AUTHORS: Korshak, V. V., Sosin, S. L., Chou Jun-p'ei

TITLE: Production of polymers by thermal dehydropolymerization of hydrocarbons

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 9, 1961, 1427

TEXT: Heat-treated hydrocarbons are cracked and dehydrogenated, and yield, besides low-molecular decomposition products, resins which are low-molecular condensation products with a complex structure which greatly differs from that of the initial products. Such resins are formed both by gaseous-phase pyrolysis and liquid-phase cracking. High-molecular polymers cannot form under these conditions due to the inevitable decomposition in the high-temperature zone. High polymers may be also obtained, however, when the hydrocarbons are thermally dehydrogenated under conditions preventing thermal degradation of the polymer. The method developed by the authors is based on the liquid-phase dehydropolymerization in a flow of nitrogen on a platinum or tungsten coil electrically heated to 650 - 700°C and immersed in the liquid hydrocarbon. The hydrocarbon

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S/190/61/003/009/015/016
B124/B101

Production of polymers...

is dehydrogenated on the coil, and simultaneously forms polymer products which are immediately carried along from the heated surface by the liquid hydrocarbon. The condensation products obtained are led from the high-temperature zone to a heated container where the drops of the condensation products are collected, and the unreacted hydrocarbon is distilled off and recycled to the reactor (see Fig.). A number of alkyl and hydroaromatic hydrocarbons was treated in this way. Tetralin is converted to naphthalene under the conditions described, whereas polymers are recovered from p-xylene, cumene, ethyl benzene, and p-diisopropyl benzene; the molecular weight of the polymers obtained from p-diisopropyl benzene is about 10,000. The yield in polymer is 10 - 15% related to the hydrocarbon used, and 70 - 80% related to the reacted hydrocarbon. There is 1 figure. [Abstracter's note: Essentially complete translation.]

SUBMITTED: January 12, 1961

Card 2/3

SOSIN, S.L., kand.khim.nauk

Gas-liquid chromatography. Priroda 50 no.7:101-104 Jl '61.
(MIRA 14:6)

1. Institut elementoorganicheskikh soyedineniy AN SSSR, Moskva.
(Chromatographic analysis)

5

23854
S/020/61/137/006/013/020
B103/B217

15 8114 2205
24 3600 (1035, 1138, 1482)

AUTHORS: Nesmeyanov, A. N., Academician, Korshak, V. V., Corresponding Member AS USSR, Voyevodskiy, V. V., Corresponding Member AS USSR, Kochetkova, N. S., Sosin, S. L., Materikova, R. B., Bolotnikova, T. N., Chibrikin, ~~V. M.,~~ and Bazhin, N. M.

TITLE: Synthesis and some optical-magnetic properties of polyferrocenes

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1370-1373

TEXT: The authors studied the magnetic properties of ferrocene derivatives: 1) of the polyferrocenylenes (Table 1, nos. 1-6), 2) the polydiisopropylferrocene (Table 1, nos. 7-8), 3) the polymethano- and 4) the polyethanopolyferrocenes (Table 1, nos. 9-13). They were synthetized by: A) Polyrecombination. To 1) and 2). 1 mole ferrocene (or of its diisopropyl homolog) was treated with 1 mole tertiary butyl peroxide in nitrogen atmosphere at 200°C. 1) and 2) are assumed to be formed as follows: the Butoxyl and methyl radicals formed during peroxide decomposition separate the hydrogen from ferrocene (or the α-hydrogen). The radicals thus formed

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B103/B217

Synthesis and some ...

recombine and form linear 1) or 2), easily soluble in benzene. An insoluble polymer (Table 1, nos. 5-6) with a two- or tridimensional network structure is formed simultaneously. The conversion of ferrocene to high-molecular products amounted to 25%. Nos. 1-3 have a softening temperature of 290-300°C and are a dark-red powder, whereas nos. 5-6 had their softening temperature at about 400°C and were light-yellow. B) Polyalkylenation of ferrocene by methylene chloride and 1,2-dichloroethane in the presence of anhydrous aluminum chloride. Aluminum chloride solution in 50 ml of dihalogen alkane was added gradually to 40 g ferrocene dissolved in 250 ml dry dihalogen alkane. The mixture was stirred for 6 hr at the boiling temperature of the solvent. The next day, 10 g aluminum chloride in 25 ml dihalogen alkane were added and treated for 6 hr as above. The mixture was decomposed by ice and HCl and treated with sodium sulfite. The obtained 3) and 4) were well soluble in benzene, differed, however, by their solubility in ether. Table 1 shows the molecular weights, the always equal g-factor and the magnetic characteristics of all substances produced. The decomposition temperature of 9-13 was 115-120°C. All substances are amorphous powders, nos. 9 and 10 light-yellow, no. 11 grey-brown. Nos. 10 and 11 are of a chemical composition similar to that of no. 9 (pentaethanodifferrocene).

Card 2/65

Synthesis and some ...

They consist possibly of 2 and 4 molecules similar to the latter, connected by ethane bridges. 4-5 methylenes in the molecule of nos. 12 and 13 belong to 2 ferrocene radicals. They do not contain halogen. The infrared spectra of nos. 9-13 have frequencies within the range 1000-1100 cm^{-1}. To 1). Derivatives 1) having a π-conjugation between the ferrocene links give a signal the electron paramagnetic resonance (e-p-r), similarly to the polyaromatic hydrocarbons. This cannot be explained by the presence of a corresponding quantity of the oxidized form of the ferricinium cation. Table 1 shows that also polymers in which the ferrocene links are separated by the $-CH_2-CH_2-$ group give an e. p. r. signal. It is known that the delocalization of the unpaired electrons between the two phenyl rings is not prevented by this group. In the substances described here, which give an e. p. r. signal, this signal is the smaller, the smaller the number of ferrocene links is. This signal vanishes in 2). Polymers with a low molecular weight give no e. p. r. signal in the solution (benzene), but in solid state. This is explained by the fact that the intramolecular interactions cause in solid state a conjugation of the adjacent polymer molecules. This causes for its part an e. p. r. signal. All polymers

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B103/B217

Synthesis and some ...

to that of ferrocene in a neutral solvent (n-octane), i. e. under conditions under which the charge is not transferred. Finally, the authors point out that their results concerning the UV-spectra apparently confirm the "pseudoferromagnetism" of the polynucleotides and of the polyaromatic hydrocarbons (Refs. 5 and 8). There are 1 figure, 1 table, and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc. The only reference to English-language publication reads as follows: J. C. D. Brand, Ref. 7: Trans. Farad. Soc., 53, 894, 1957.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: December 20, 1960

Legend to Table 1. I) Current number, 1-4) linear polyferrocenylene, 5-6) insoluble polyferrocenylene, 7) polydiisopropylferrocene, linear, 8) like 7, insoluble, 9-11) condensation products of ferrocene with Di-1,2-chloroethane, 12-13) with methylene chloride, 14) ferricinium cation. II) Substance, III) molecular weight, IV) g-factor, V-VI) line width, oersted

Card 5/6 5

40731

S/062/62/000/009/009
B119/B186

5.3832

AUTHORS: Sosin, S. L., Korshak, V. V., Vasnev, V. A., and Baranov, Ye.L.

TITLE: Synthesis of polymers from nitriles of aliphatic acids

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 9, 1962, 1644 - 1650

TEXT: Cyanoacetic methyl ester (I), malonic dinitrile (II), and adipic dinitrile (III) were each of them polyrecombined by heating to 200°C in the presence of tertiary butyl peroxide. The resulting polymers underwent elementary analysis. Their IR and EPR spectra were studied and the probable reaction scheme was plotted from the data so obtained. I yielded a black powdery polymer soluble in dimethyl formamide, having a molecular weight of 3400 - 7300 (depending on the peroxide amount used); softening temperature 500°C; 70 % yield at a molar ratio peroxide : I = 1.5 : 1; reaction scheme

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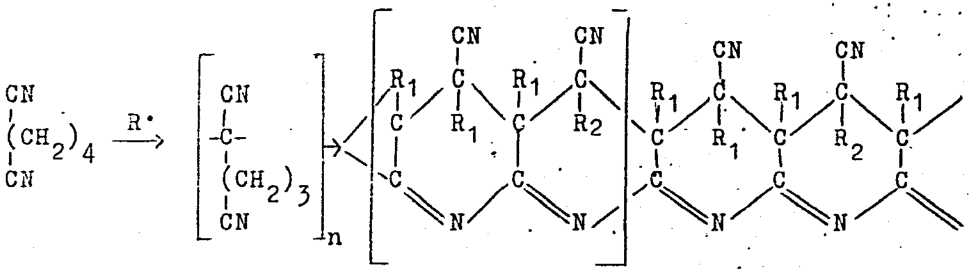
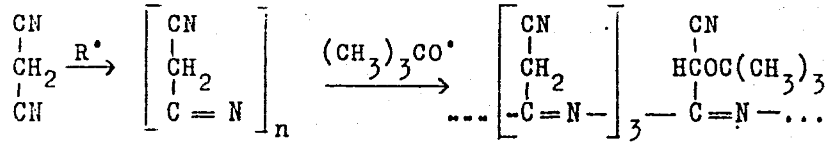


n = 104; $R_1 = (CH_2)_3CN$; $R_2 = CH[\cdot OC(CH_3)_3].(CH_2)_2CN$

III too gave a black powder soluble in dimethyl formamide; molecular weight 5500 (maximum 6200 after fractionation); softening temperature 500°C; 75 % yield at a molar ratio peroxide : III = 0.4 : 1; reaction scheme



KORSHAK, V.V.; SOSIN, S.L., kand.khim.nauk

New method of the synthesis of polymers. Priroda 51 no.4:98-101 Ap '62. (MIRA 15:4)

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

3

KORSAK, V.V., VINOGRADOVA, S.V., SOSIN, S.L., SLADKOV, A.M.

Synthesis and electrophysical properties of the polymers with the conjugated system of bonds and the polycoordination polymers.

Report submitted for the International Symposium of Macromolecular chemistry Paris -1-6 July 63

L 11089-63 EPR/EWP(j)/EPF(c)/EWT(l)/EWT(m)/BDS--ASD/ESD-3--Ps-4/
Pc-4/Pr-4--RM/WW/MAY
ACCESSION NR: AP3000691 S/0190/63/005/005/0663/0669 77
76

AUTHOR: Korshak, V. V.; Sosin, S. L.; Alekseyeva, V. P.; Morozova, Ye. M.

TITLE: Investigation of the structure of a polymer prepared by the polyrecombination of benzyl trifluoroacetate

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 5, 1963, 663-669

TOPIC TAGS: polyrecombination, polymer, benzyl trifluoroacetate, electron paramagnetic resonance

ABSTRACT: The structure properties of a polymer prepared by the polyrecombination of benzyl trifluoroacetate have been studied at the Institute of Organoelemental Compounds, AN SSSR by IR and EPR spectroscopy and by the method of thermomechanical curves. The polymer was synthesized at 170C in the presence of tert-butyl peroxide by a previously described method (V. V. Korshak, S. L. Sosin, M. V. Chistyakov, Uspekhi khimii i tekhnologii polimerov, Goskhimizdat, 1960, p. 45), and the reaction products were isolated and analyzed. Study of the thermomechanical curves indicate that the polymer exhibits elastic properties at 220 to 550C. As the peroxide/monomer ratio is varied from 2.15 to 3.05/1, the polymer yield varies from 7.05 to 31.4% on the reacted monomer, the mol. wt. from 1020 to 22,000, and the softening point from 198 to 580C. The EPR spectrum of

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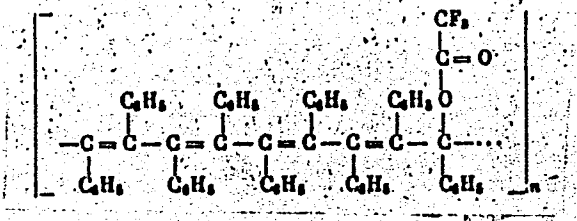
ACCESSION NR: AP3000691

polymer showed a narrow (δH = 5 oe) and intense signal, indicating the presence of unpaired electrons. Emission of the EPR signal by both the solid polymer and its benzene solutions showed that electrons are delocalized within the polymer molecules. The assumption that the EPR spectrum is due to the presence of conjugated double bonds is confirmed by the IR spectra. The IR spectrum also indicates that in the polymer, as in the monomer, the fluorine is found in the ester groups. These spectroscopic data and elemental analysis of the polymer suggest that it has the following structure:



where every 7th or 9th C atom has a trifluoroacetate substituent. This structure is probably formed by the splitting off of most of the trifluoroacetate groups

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ACCESSION NR: AP3000691

in the polyrecombination; these are unstable and undergo further decomposition. Orig. art. has: 3 figures, 4 formulas, and 1 table.

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

SUBMITTED: 09Oct61 DATE ACQ: 17Jun63 ENCL: 00

SUB CODE: CH, MA NO REF SOV: 007 OTHER: 006

mcs/

Card 3/3

VASNEV, V.A.; SOSIN, S.L.; KORSHAK, V.V.

Study of the reaction of fatty and aromatic acid nitriles with tertiary butyl peroxide. Izv. AN SSSR. Ser.khim. no.7:1312-1319 Jl '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Nitriles) (Butyl peroxide)

VAL'KOVSKIY, D.G.; SOSIN, S.L.; KORSHAK, V.V.

Study of tert-butyl peroxide decomposition and the reactions of radicals formed in the synthesis of polydiphenylmethylene. Izv. AN SSSR. Ser.khim. no.7:1319-1327 Jl '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(butyl peroxide) (Polymers) (Radicals (Chemistry))

VASNEV, V.A.; SOSIN, S.L.; KORSHAK, V.V.

Synthesis of polymers from diphenylmethane derivatives by means of polyrecombination reaction. Izv.AN SSSR.Ser.khim. no.8: 1487-1496 Ag '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Polymers) (Methane)

S/190/63/005/004/004/020
B101/B220

AUTHORS: Sosin, S. L., Korshak, V. V.

TITLE: Polybenzylidene benzoate and polybenzylidene alcohol

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 4, 1963, 499-505

TEXT: Previously (Dokl. AN SSSR, 132, 360, 1960) polybenzylidene benzoate, $[C_6H_5\text{-}COO\text{-}\underset{|}{\overset{|}{C}}\text{-}C_6H_5]_n$, was obtained by bringing benzyl benzoate into reaction with tert-butyl peroxide. In this paper the conditions of the synthesis were studied mor thoroughly and the polymer was converted to polybenzylidene alcohol. The dependence of yield and molecular weight on the initiator/monomer ratio was determined and a maximum m.w. of ~ 540,000 was obtained with 2.35 mole peroxide per mole benzyl benzoate. Compounds obtained from the low-molecular reaction products by treatment with acetic acid and precipitation with methanol: diphenyl ethylene glycol dibenzoate which is an intermediary polymerization product, a low-molecular polymer fraction (m.w. 600 - 800), and a mixture of methyl-phenyl carbinol benzoate and α-methyl hydro benzoin dibenzoate. Therefrom it is concluded that a small number of side reactions also occur with the methyl groups formed on de-

Card 1/4

composition of tert-butyl peroxide. When polybenzylidene benzoate dissolved in tetrahydrofuran is treated at 27 - 30°C for 1 hr with $LiAlH_4$ there is a formation of polybenzylidene alcohol, $\left[C_6H_5-\overset{|}{\underset{|}{C}}-OH\right]_n$ which is a white powder, not previously described, m.w. 37,000, m.p. 125 - 130°C, easily soluble in alcohols and other organic solvents but insoluble in benzene. The structure was identified from the 3200 - 3400 cm^{-1} band of the IR spectrum (OH band). Direct polymerization of benzylidene alcohol does not yield polybenzylidene alcohol but polybenzylidene benzoate which is obtainable also from benzaldehyde. Hence, the following reaction scheme is suggested:

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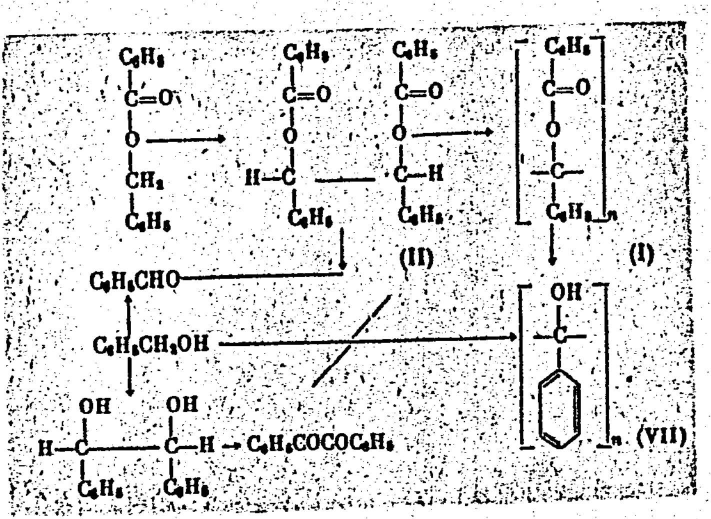
Polybenzylidene benzoate and ...



Card 3/4

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B101/B220

Polybenzylidene benzoate and ...

There are 3 figures and 1 table.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: September 13, 1961

KORSHAK, V.V.; SOSIN, S.L.; ALEKSEYEVA, V.P.; MOROZOVA, Ye.M.

Structure of the polymer obtained by polyrecombination of benzyl trifluoroacetate. Vysokom.soed. 5 no.5:663-669 My '63. (MIRA 17:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

SOSIN, S.L.; KORSHAK, V.V.; ALEKSEYEVA, V.P.

Polymers and copolymers of derivatives of ferrocene obtained by the polyrecombination method. Dokl. AN SSSR 149 no.2:327-329 Mr '63. (MIRA 16:3)

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

(Ferrocene) (Polymerization)

KORSHAK, V.V.; SOSIN, S.L.; VASNEV, V.A.

Synthesis of polymers from the nitriles of aromatic and fatty acids by polyrecombination reaction. Dokl. AN SSSR 152 no.4: 872-874 0 '63. (MIRA 16:11)

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

S/0190/64/006/001/0180/0181

ACCESSION NR: AP4009163

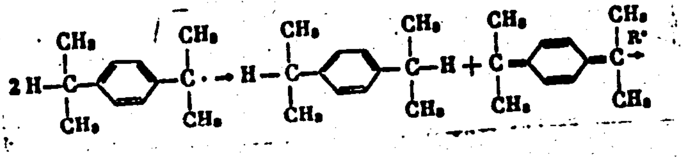
AUTHORS: Korshak, V. V.; Sosin, S. L.

TITLE: Production of high-molecular polymer by p-di-isopropylbenzene reaction with tret.butyl peroxide [Letter to the editor]

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 1, 1964, 180-181 and lower half of insert following page 86

TOPIC TAGS: polymer, crystalline structure, quinoid, isomer, chromatography, oligomer, isopropylbenzene

ABSTRACT: It has been shown that chromatographically pure p-di-isopropylbenzene reacts with tret.butyl peroxide at 200C to form a high-molecular weight polymer (mol wt $4 \cdot 10^5 - 5 \cdot 10^5$) of crystalline structure. This is apparently due to chain polymerization of the diradicals in the quinoid form, given by



ACCESSION NR: AP4009163

The m-isomer gives only the oligomer under the same conditions. "The authors are grateful to V. B. Bondarev and S. V. Vitt for the gas-liquid chromatography analysis." Orig. art. has: 2 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 10Sep63 DATE ACQ: 10Feb64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 003

Card 2/2

ACCESSION NR: AP4019011 S/0062/64/000/002/0347/0353

AUTHOR: Sosin, S. L.; Korshak, V. V.

TITLE: Synthesis of polymers from phenols and their esters by polyrecombination

SOURCE: AN SSSR. Izv, Seriya khimicheskaya, no. 2, 1964, 347-353

TOPIC TAGS: phenol polyrecombination, cresol, phenol, hydroquinone, cross recombination

ABSTRACT: As a development from their previous work, the authors investigated the polyrecombination reactions of p-cresol, phenol, hydroquinone, dimethyl ether and hydroquinonediacetate. Polymers with mol. weights ranging from 7000 to 10000 were prepared by treating them with di-tert.butyl peroxide at a temperature of 200C. Their properties were investigated. The authors propose a probable formation mechanism of such polymer, taking into account, in the case of phenols with free hydroxy groups, a preliminary cross-recombination of phenoxy radicals with the active free radicals. The polymer of hydroquinone has a chain of alternating hydroquinone and benzoquinone rings and shows superior thermal

Card 1/2

ACCESSION NR: AP4019012 S/0062/64/000/002/0354/0357

AUTHORS: Sosin, S.L.; Korshak, V.V.

TITLE: Polymer synthesis from aromatic amines by polyrecombination

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no.2, 1964, 354-357

TOPIC TAGS: polymer semiconductor, aromatic amine polyrecombination, amine, aromatic amine, polymer, semiconductor

ABSTRACT: High melting points and possible application of these polymers as semiconductors prompted this work. This is a continuation of other work by the authors showing that polymers with regularly repeated azo-group in the chain (i.e., polyazobenzenes and their analogues) can be readily prepared by polyrecombination of aromatic amines (p-phenylenediamine, benzidine) when treated with tertiary butyl peroxide at 200C. Apparently, polymers are formed by recombination, active butoxyl and methyl radicals formed in the decomposition of the peroxide tear off hydrogen atoms from the amino-groups while the radicals which are formed recombine with the unpaired hydrogen at the nitrogen atom. A further growth of the chain on behalf of the amino end-groups is

ACCESSION NR: AP4019012

apparently accompanied by the simultaneous dehydrogenation of the secondary amino-groups resulting in polyazobenzene. Along with the growth of the chain, there is the possibility of an attack of the benzene rings by active radicals and condensations as a result of homolytic substitution of hydrogen atoms. To prove these premises, the authors heated initial compounds; benzidine, p-phenylenediamine and a mixture of the latter with hydroquinone in a nitrogen atmosphere until they melted (but below 200C) and introduced into the melt tertiary butyl peroxide dropwise until the mixture thickened. The reaction product was leached with methanol or dimethylformamide and the solid residue was analyzed and its characteristics determined and described. The molecular weight of the polymers amounted to 7000.

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

SUBMITTED: 22Aug62 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: CH NR REF SOV: 006 OTHER: 005

Card 2/2

ACCESSION NR: AP4032577 S/0190/64/006/004/0745/0750

AUTHORS: Sosin, S. L.; Korshak, V. V.; Alekseyeva, V. P.

TITLE: A study of the possibility of synthesizing high molecular compounds from diphenylsilane under conditions of the polyrecombination reaction

SOURCE: Vy*sokomolek. soyedin., v. 6, no. 4, 1964, 745-750

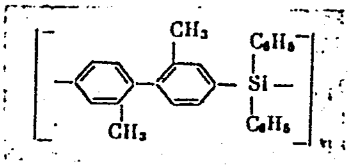
TOPIC TAGS: organosilicon compound, diphenylsilane, triphenylsilane, tetraphenylsilane, phenylsilane polyrecombination, phenylsilane heterochain polymer, tetraphenylsilane polymer, diphenylsilane disproportionation, UR 10 spectroscope, Trub Tauber spectrometer

ABSTRACT: The polyrecombination of diphenylsilane was conducted in the presence of tert.butyl peroxide in a special apparatus at 170 and 200C. The reaction products were treated with benzene, and the soluble polymer was precipitated with methanol. The obtained compounds were fractionated, analyzed chemically, and examined by infrared spectroscopy on a UR-10 apparatus and on a nuclear magnetic resonance Trüb Täuber spectrometer. The main polymer isolated by the authors

Card 1/3

ACCESSION NR: AP4032577

is ascribed the formula



Its formation may have proceeded through the intermediate product tetraphenylsilane, which has been isolated from the reaction products together with triphenylsilane and hydrosilicon. Since at a 1:0.1 molar ratio of the issuing diphenylsilane and peroxide only 4% of diphenylsilane could be recovered, it is assumed that a disproportionation reaction takes place in which some of the products become involved in the building of the polymer chain. This assumption is supported by the fact that increased concentrations of the peroxide result in a higher yield of tetraphenylsilane. Heating of the obtained polydiphenylsilane of molecular weight 1530 to 900C in a quartz tube yielded a polymer with a molecular weight of 810. The benzene-insoluble fraction of the diphenylsilane polyrecombination reaction products yielded a polymer of 190 500 molecular weight. Orig. art. has: 5 formulas and 1 chart.

ACCESSION NR: AP4032577

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

SUBMITTED: 01Jun63	DATE ACQ: 11May64	ENCL: 00
SUB CODE: CH	NO REF SOV: 005	OTHER: 009

Card 3/3

ACCESSION NR: AP4037279 S/0190/64/006/005/0827/0831

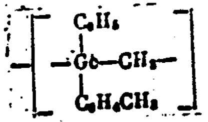
AUTHORS: Sosin, S. L.; Korshak, V. V.; Alekseyeva, V. P.

TITLE: A study of the possibility of obtaining high molecular compounds from diphenylgermanium under conditions of the polyrecombination reaction

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 5, 1964, 827-831

TOPIC TAGS: diphenylgermanium polyrecombination, diphenylgermanium high molecular compound, diphenylgermanium disproportionation reaction, diphenylgermanium disproportionation product, tetraphenylgermanium, diphenylgermanium, germanium hydride

ABSTRACT: The polyrecombination of diphenylgermanium was conducted at 200C (in the presence of tert.butyl peroxide) by a technique described by the authors in an earlier publication (Vy*sokomolek. soyed. 3, 1332, 1961). The reaction product was treated with benzene, and the soluble fraction was precipitated with methanol. It was found that the disproportionation of diphenylgermanium produced 50% of a polymer



$$\left[-\overset{\displaystyle C_6H_5}{\underset{\displaystyle C_6H_4CH_3}{Ge}}-CH_2- \right]$$

Card 1/2

ACCESSION NR: AP4037279

(with a maximum molecular weight of 1840) and also tetraphenylgermanium, triphenylgermanium, and germanium hydride, the presence of which was confirmed by infrared spectroscopy. The thermal disproportionation of diphenylgermanium also took place without tert.butyl peroxide at 200C and at 140C. A copolymer of diphenylgermanium with diphenylmethane in equimolar ratio was synthesized in the presence of tert.-butyl peroxide, yielding an amorphous brown product with a molecular weight of 4800. Orig. art. has: 4 formulas.

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

SUBMITTED: 01Jun63 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: MT NO REF SOV: 004 OTHER: 008

Card 2/2

ACCESSION NR: AP4037282 S/0190/64/006/005/0843/0849

AUTHOR: Vasnev, V. A.; Sosin, S. L.; Korshak, V. V.

TITLE: Preparation of polymers by recombination from aromatic and aliphatic nitriles

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 5, 1964, 843-849

TOPIC TAGS: organic semiconductor, semiconducting polymer, polynitrile, recombination, nitrile, aromatic nitrile, aliphatic nitrile

ABSTRACT: A study has been made of 1) the polyrecombination of an aromatic nitrile having no substituents such as methyl or methylene, and 2) the synthesis of aliphatic nitrile copolymers showing both high thermal stability and solubility in organic solvents and softening without decomposition. In case 1, benzonitrile was

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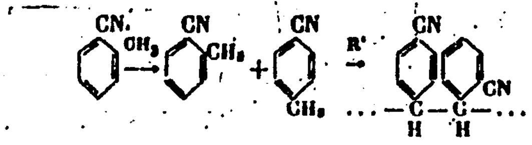
ACCESSION NR: AP4037282

treated with tert-butyl peroxide to form a polymer:



The above polymer structure was confirmed by IR and elemental analysis. In case 2, a mixture of two nitriles was treated with tert-butyl peroxide: malonitrile and adiponitrile, a-tolunitrile, or diphenylmethane; methyl 2-cyanoacetate and a-tolunitrile or malonitrile. All the copolymers produced contained a system of conjugated C=N bonds in the backbone, gave an EPR signal, and had high decomposition temperatures (300—600C), but showed no elasticity. As a rule, they were soluble in dimethylformamide and cresol only, and exhibited semiconducting properties. The temperature dependence of conductivity obeyed an exponential law.

Card 2/3

ACCESSION NR: AP4037282

Conductivity measured in vacuum (about 10^{-3} mm Hg) at 293K ranged from $3.35 \cdot 10^{-22}$ to $9.33 \cdot 10^{-17}$ ohm^{-1} cm^{-1}, but at 225—300C it reached 10^{-11} ohm^{-1} cm^{-1}. This research was done at the Institute of Organoelemental Compounds of the Academy of Sciences USSR. Orig. art. has: 2 figures, 3 tables, and 6 formulas.

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

SUBMITTED: 05Jun63 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: MT NO REF SOV: 007 OTHER: 009

Card 3/3

SOSIN, S. L.; KORSHAK, V. V.; VAL'KOVSKIY, D. G.

Reactivity of hydrocarbons and their derivatives in the polyrecombination reaction. Dokl. AN SSSR 155 no. 2:376-378 Mr '64. (MIRA 17:5)

1. Chlen-korrespondent AN SSSR (for Korshak).

SOSIN, S.L.; KORSHAK, V.V.; VASNEV, V.A.

Effect of polar factors in the polyrecombination reaction.
Dokl. AN SSSR 156 no. 5:1124-1126 Je '64. (MIRA 17:6)

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

L 19798-65 EWG(j)/EWT(m)/EPF(c)/EPR/EWP(j)/EWP(t)/EWP(b) Pc-4/Pr-4/Ps-4 IJP(c)/
ASD(m)-3/AFETR/RAEM(i) RM/JD
ACCESSION NR: AP5003607 S/0190/64/006/007/1213/1220

AUTHOR: Sosin, S. L.; Korshak, V. V.; Val'kovskiy, D. G. 35 37 B

TITLE: Polyrecombination of diphenylmethane 7 by means of various peroxides 7

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 6, no. 7, 1964, 1213-1220

TOPIC TAGS: peroxide, methane, polymerization

ABSTRACT: The polyrecombination of diphenylmethane under the action of various peroxides 7 (tertiary butyl peroxide, benzoyl peroxide, tertiary butyl perbenzoate, and acetyl perbenzoate) was investigated. Polymer products with low molecular weights were found to be formed in these cases, as a result of the occurrence of processes of initiated decomposition of the peroxides and the incorporation of phenyl, methyl, and benzoate radicals into the benzene rings, unrelated to growth of the polymer chain. Orig. art. has 21 formulas, 5 graphs and 2 tables.

Card 1/2

L 19798-65
ACCESSION NR: AP5003607

/

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

SUBMITTED: 19Jul63
ENCL: 00
SUB CODE: OC, GC

NO REF SOV: 008
OTHER: 011
JPRS

Card 2/2

L 19799-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 ASD(m)-3/AFETR RM

S/0190/64/006/007/1228/1233

ACCESSION NR: AP5003608

B

AUTHOR: Sosin, S. L.; Morozova, Ye. M.; Korshak, V. V.

TITLE: Production of high-molecular compounds on the basis of allyl derivatives by the method of polyrecombination

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 6, no. 7, 1964, 1228-1233

TOPIC TAGS: polymerization, macromolecular chemistry

ABSTRACT: Polymers were synthesized by the reaction of polyrecombination, i.e. utilizing those factors that normally prevent radical polymerization: the stability of the allyl radical, which is incapable of continuing the chain, but inclined to recombination, and the ease of homolytic stripping of hydrogen atoms of the methylene group. The method of synthesizing polymers by polyrecombination reactions is based on the recombination of the radicals formed by stripping the labile hydrogen atoms by the radicals arising in the thermal decomposition of peroxides. The polyrecombination reaction was conducted at 200°, using p-allylanisole as the monomer and tertiary butyl peroxide as the source of free radicals. A polymer was

Card 1/2

L 19799-65
ACCESSION NR: AP5003608

obtained, in which the double bonds were preserved. The polymer possessed
a molecular weight of $5 \cdot 10^6$ and melted at 300°. It was shown that polymer
formation proceeds in two steps, namely by preliminary conversion of ally-
lanisole to an oligomer with molecular weight ~ 4000 through the polyrecom-
bination reaction (first step), then further polymerization of the oligomer
according to a radical mechanism (second step). Orig. art. has 3 formulas,
4 graphs and 1 table.

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

SUBMITTED: 22Jul63 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 006 OTHER: 008 JPRS

Card 2/2

L 10377-65 EWT(1)/EPA(s)-2/EWG(k)/EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pz-6/Pr-4/Pt-10
IJP(c)/AFWL/SSD AT/RM

ACCESSION NR: AP4047215 S/0190/64/006/010/1848/1851

AUTHOR: Val'kovskiy, D. G.; Sosin, S. L.; Korshak, V. V.; Pavlova, S. A.

TITLE: Polydispersity and chain structure of polyphenylmethylene

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, no. 10, 1964, 1848-1851, and top half of insert facing p. 1850

TOPIC TAGS: polydispersity, chain structure, polyphenylmethylene, organic semiconductor, fractionation, molecular weight, intrinsic viscosity, semiconducting polymer

ABSTRACT: A study has been made of the fractional composition of polyphenylmethylene (PPM) and of the relationship between the molecular weight (M) and the intrinsic viscosity [η] of fractionated PPM. Previously prepared PPM was fractionated by means of precipitation by addition of a nonsolvent. The intrinsic viscosity and molecular weight were determined for each fraction by light scattering. PPM showed considerable polydispersity when the Mw/Mn ratio was

Card 1/3

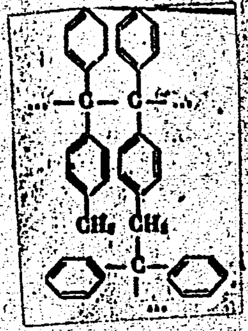
L 10377-65

ACCESSION NR: AP4047215

43. The relation between [η] and M fitted the formula:

$$[\eta] = 3.93 \times 10^{-3} \times M^{0.325},$$

The small value of the exponent of M suggested that PPM chains are branched as follows:



Branching was assumed to result in loose macromolecular packing. This was confirmed by x-ray patterns and a thermomechanical curve

Card 2/3

L 10377-65

ACCESSION NR: AP4047215

showing the absence of crystallivity and high-elastic deformation. Orig. art. has: 4 figures, 1 table, and 3 formulas.

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

SUBMITTED: 13Dec63 ATD PRESS: 3119 ENCL: 00

SUB CODE: OC, SS NO REF SOV: 008 OTHER: 004

Card 3/3

L 14377-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP4047327 S/0020/64/158/004/0915/0917

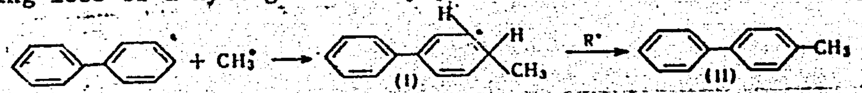
AUTHOR: Sosin, S. L.; Korshak, V. V. (Corresponding member AN SSSR); Val'kovskiy, D. G.

TITLE: Reaction of biphenyl with tert-butyl peroxide

SOURCE: AN SSSR. Doklady*, v. 158, no. 4, 1964, 915-917

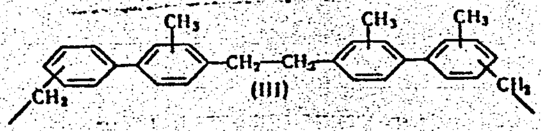
TOPIC TAGS: polyrecombination, biphenyl, diphenyl ether, benzophenone, tert-butyl peroxide

ABSTRACT: A study has been made of the polyrecombination of biphenyl, diphenyl ether, or benzophenone in the presence of tert-butyl peroxide to form polymers and oligomers having methylated benzene rings. The reactions were carried out under nitrogen at 200C with the peroxide added dropwise. The reaction products were separated by distillation and recrystallization and identified by gas-liquid chromatography, derivatization to the dicarboxylic acids, inpared spectroscopy and elemental analysis. The polymer produced from biphenyl is apparently formed by the repeated methylation of methylphenyl-radical recombination products with the resulting loss of a hydrogen atom by part of the methyl group, etc.



Card 1/2

L 14377-65
ACCESSION NR: AP4047327



(III)

Polymers from diphenyl ether and benzophenone were prepared at peroxide/monomer ratios of 1.5/1 and above. Their respective molecular weights were 3000 and >15,000, and their melting points 160—177 and 205—215C. Orig. art. has: 2 figures and 3 formulas.

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

SUBMITTED: 28Apr64 ENCL: 00 SUB CODE: MT

NO REF SOV: 002 OTHER: 004

Card 2/2

L 39762-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM
ACCESSION NR: AP5005591 S/0190/65/007/002/0232/0238
27
26
B

AUTHORS: Korshak, V. V.; Sosin, S. L.

TITLE: Synthesis of polymers from 1,2-ditolylethane and n-diisopropylbenzene 1

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 2, 1965, 232-238

TOPIC TAGS: polymer synthesis, polymer, polytetramethylquinodimethane, diisopropylbenzene, ditolylethane, poly n xylylene / UR 10 infrared apparatus, KYS 25NMR apparatus 26 10

ABSTRACT: Reactions of tert-butyl peroxide with 1,2-ditolylethane (DE) and n-diisopropylbenzene (DPB) yielded high-molecular weight polymers with structures corresponding to poly-n-xylylene and poly-tetramethylquinodimethane. The synthesis was performed as previously described by V. V. Korshak, G. S. Kolesnikov, and A. V. Kharchevnikova (Dokl. AN SSSR, 56, 169, 1947) by adding tertbutyl peroxide in drops to the hydrocarbon (at 200C) and by mixing in a nitrogen atmosphere. The resulting insoluble (in benzene) polymer was filtered; the soluble part was vacuum-distilled and treated with alcohol to separate the dimers and oligomers. Crystallization produced the dimer of n-diisopropylbenzene (III), while freezing to -80C produced 1,4-dicumyl-2,3-dimethylbutane (IV).

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L 39762-65
ACCESSION NR: AP5005591

IR spectra of the polymers and oligomers were taken on apparatus UR-10 with KBr tablets, and NMR spectra of the oligomers and dimer III were obtained on apparatus KYS-25 at 25 mcps. Using 1.1 moles of peroxide per mole of hydrocarbon (DE) gave 60% oligomer (M. W. 3000) and 30% low molecular weight products (400-500). The oligomer had the structure $(—CH_2C_6H_4CH_2—)_n$.

Addition of up to 1.3 moles of peroxide produced a high-molecular weight polymer (200 000) of the same structure. The polymer obtained with DPB was found to be insoluble in benzene and other solvents, but soluble in benzyl benzoate, had a melting temperature of 300C, a crystalline structure (particularly for reaction temperature of 180C), and a molecular weight of $4-5 \times 10^5$. A scheme for the synthesis of both types of polymers was suggested, based on the disproportionation of mono n-diisopropylbenzene radicals and preliminary breakdown of poly-n-xylylene oligomers. Orig. art. has: 4 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organic Compounds, AN SSSR)

SUBMITTED: 01Apr64 ENCL: 00 SUB CODE: OC

NO REF SOV: 005 OTHER: 012

Card 2/2

L 37668-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/EWA(h) Pc-4/Pr-4/Ps-4/Peb RPL
WW/RM

ACCESSION NR: AP5008114 S/0062/65/000/002/0367/0368

AUTHOR: Bochvar, D.A.; Sosin, S.L.; Korshak, V.V.; Tutkevich, A.V.; Vasnev, V.A.

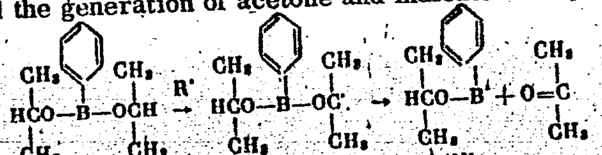
38
37
B

TITLE: Reaction of diisopropylphenylborate with free radicals

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskikh, no. 2, 1965, 367-368

TOPIC TAGS: alkylphenylborate, diisopropylphenylborate, free radical, tertiary butyl peroxide, gas liquid chromatography, heteroorganic compound, organoboron compound

ABSTRACT: Experimental results on the interaction of diisopropylphenylborate with tert.-butyl peroxide and a computation of the stability of borate ester radical are presented to explain the high hydrolytic stability of polymers formed by diisopropylphenylborate (Vysokomolekul. soyed. 1, 1959, 937; Ind. and Eng. Chem. v. 49, 1957, 174). Gas-liquid chromatography of the products formed by the interaction with tert.-butyl peroxide at 100C proved the generation of acetone and indicated the presence of two types of free radicals:



(I) (II)

L 37668-65

ACCESSION NR: AP5008114

Polymers are probably formed by multiple interaction of type I and II radicals resulting in links corresponding to those formed by the alkyl esters of disubstituted boroorganic acids. The latter have been proved to exhibit high hydrolytic stability. The high stability of radical II and its relatively long lifetime as compared with systems of type C_6H_5-B-R was shown by computing the energy balances of π-electrons and by the molecular diagram of the radical (see Fig. 1 of the Enclosure). Orig. art. has: 9 formulas and 1 figure.

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

SUBMITTED: 15Jun64

ENCL: 01

SUB CODE: OC

NO REF SOV: 002

OTHER: 001

Card 2/3

L 37668-65

ACCESSION NR: AP5008114 **ENCLOSURE: 01** 0

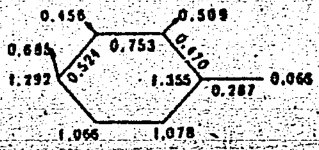


Fig. 1. Molecular diagram of the phenyl-boron-R radical.

mc

Card 3/3

KORSHAK, V.V.; SOSIN, S.L.

Synthesis of polymers from 1,2-ditolylethane and p-diisopropylbenzene. Vysokom. soed. 7 no.2:232-238 F '65. (MIRA 18:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

L 37096-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6015615 (N) SOURCE CODE: UR/0020/66/168/002/0357/0359

AUTHOR: Sosin, S. L.; Chikishev, Yu. G.

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

TITLE: Synthesis and study of polymers from phenylcyclosilanes

SOURCE: AN SSSR. Doklady, v. 168, no. 2, 1966, 357-359

TOPIC TAGS: radiation polymerization, organosilicon compound, polymer, thermal degradation, silane

ABSTRACT: In a synthesis of the high molecular polydiphenylsilylene $((C_6H_5)_2Si)_n$, which had not yet been described, the monomers used were four- and five-membered cyclosilanes obtained from diphenylchlorosilane by reaction with sodium or lithium in tetrahydrofuran. The cyclosilanes were octaphenylcyclotetrasilane (A), decaphenylcyclopentasilane (B), and an amorphous vitreous modification of octaphenylcyclotetrasilane (C). Polymers of substantial molecular weights were obtained by irradiating melts of these monomers with fast 1 MeV electrons in evacuated ampoules. As indicated by IR spectra, the polymer formation is apparently due to the opening of rings of the initial compounds under the influence of irradiation, followed by the formation of polydiphenylsilylene. Judging from the molecular weights, the number of silicon atoms

Card 1/2 UDC: 2333

Card 2/2 LP

SOSIN, V.V., mayor meditsinskoy sluzhby

Clinical manifestations of pressure injuries of the lungs. Voen.-med.zhur. no.8:46-48 Ag '59. (MIRA 12:12)
(LUNG DISEASES)
(DECOMPRESSION SICKNESS)

MAKSIMOV, A.V., kapitan meditsinskoy sluzhby; SOSIN, V.V., mayor meditsinskoy sluzhby

Provision of submarines with sterile surgical linen and material during cruises without contact with shore bases. Voen.-med. zhur. no.3:38-39 Mr '60. (MIRA 14:1)

(SUBMARINE MEDICINE)
(SURGICAL INSTRUMENTS AND APPARATUS)

SOSIN, V.V., mayor med. sluzhby

Special training of physicians and instructiors - chemist - sanitary personnel of submarines. Voen.-med.zhur. no.10:76-78 O '61. (MIRA 15:5)

(SUBMARINE MEDICINE)

SOSIK, Ye. Ye.

Dissertation: "An Investigation of the Efficiency of High-Speed Machining of Metals on Universal Lathes." Cand Tech Sci, Moscow Engineering Economics Inst imeni Sergo Ordzhonikidze, 18 Jun 54. (Vechernyaya Moskva, Moscow, 9 Jun 54)

SO: SUM 318, 23 Dec 1954

Sosin Ye. Ye.

SOSIN, Ye.Ye., kand.tekhn.nauk

Wear of cutting tools caused by cutting conditions. Trudy MIEI no.7:36-46 '57. (MIRA 10:12)
(Cutting tools) (Mechanical wear)

L'VOV, Dmitriy Semenovich; SOSIN, Yeremey Yefimovich; TILLES, S.A., kand. tekhn. nauk, retsenzent; RUZIN, V.A., inzh., retsenzent; SALYANSKIY, A.A., red. izd-va; DOBRITSYNA, R.I., tekhn. red.

[Technological fundamentals and economic calculations of the mechanization and automation of small-lot manufacture of machinery] Tekhnologicheskie osnovy i ekonomicheskie raschety mekhanizatsii i avtomatizatsii melkoseriinogo mashinostroeniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1961. 246 p. (MIRA 14:11)
(Automation) (Industrial management)

Sosin, Zofia

5
4E3d

1. Photocolorimetric determination of small amounts of silicon in cryolite and other fluorides sparingly soluble in water. Wladyslaw Augustyn and Zofia Sosin (Inst. Inorg. Chem., Gliwice, Poland). Chem. Anal. (Warsaw) 2, 305–13(1957)(English and Russian summaries).—A photocolorimetric method is given for detg. small amts. of Si (from 0.02 to 1.2% SiO_2) in fluorides slightly sol. in H_2O, such as Na_3AlF_6 (cryolite), CaF_2, and AlF_3 (cf. Shell, *C.A.* 50, 8383*i*; S. and Craig, *C.A.* 48, 10489*c*; Brabson, *et al.*, *C.A.* 42, 5707*e*; Shell, *C.A.* 50, 8383*i*; Jewsbury, *C.A.* 44, 6344*g*). The fluoride samples can be dissolved by fusion in an alk. medium. For AlF_3, freshly pptd. or dried at low temp., fusion may be replaced by dissolving the sample in HNO_3 in presence of NH_4F or NaF. CaF_2 pptd. or dried at 200° is dissolved in HNO_3 without adding NH_4F or NaF. For AlF_3, only alk. fusion is possible. This method is simpler and more exact than gravimetric ones. The time needed to dissolve samples in HNO_3 was about 30 min., whereas the time of fusion was 1.5 to 2.0 hrs. The error was from 2 to 12%. The method can be applied in controlling production of $NaAlF_6$, CaF_2, and HNO_3. Z. Kurtyka

SOSIN, Z.; ZAREMBA, J.; AUGUSTYN, W.

Analysis of fluorine compounds. p. 871.

CHEMIA ANALITYCZNA. (Komisja Analityczma Polskiej Akademii Nauk i Naczelna Organizacja Techniczna) Warszawa, Poland. Vol. 3, No. 5/6, 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 8, August 1959

UNCL.

SOSIN, Z.; ZAREMBA, J.

Methods of analyzing potassium salts. p. 883.

CHEMIA ANALITYCZNA. (Komisja Analityczma Polskiej Akademii Nauk i Naczelna Organizacja Techniczna) Warszawa, Poland. Vol. 3, No. 5/6, 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 8, August 1959

UNCL.

SOSIN, Z.

Distr: 4E2c

Determination of calcium in presence of magnesium and ammonium salts by means of versenate (EDTA). Zofia Sosin (Zaklad Anal. Inst. Chemii Nieorganicznej, Gliwice, Poland). *Chem. Anal.* 3, 1013-18(1958)(English summary).—Make alk. with KOH a sample contg. Ca and boil for 10-15 min. Acidify the soln. with HCl, cool, neutralize with 4 ml. 4*N* KOH for each 50 ml. of soln., and titrate with versenate in presence of murexide. The method was proved by detg. Ca and Mg in siderites. The results were reproducible and in agreement with those obtained by the gravimetric method. Detn. of Ca without removal of NH_4 salts: to a soln. contg. Ca and Mg add 4*N* KOH to pH 12, then add 2 ml. in excess and titrate the soln. with versenate. The method was proved by detg. Ca and Mg in standard 0.05*M* solns. contg. variable amts. of NH_4Cl and in minerals (8 standard solns. were prepd. contg. Ca, Mg, Fe, and Al in ratios approaching those in siderites and clays, namely CaO 2-30, MgO 2.5-10, Fe_2O_3 14-57, and Al_2O_3 2-15%).

Z. Kurtyka

CHETKOWSKA, Maria; SOSIN, Zofia; STRZESZEWSKA, Irena

Complexometric determination of zinc in analytical control of zinc compounds. Application of complexometric methods for zinc ash analysis. Determination of lead, iron aluminum and zinc. Chem anal 6 no.3:309-316 '61.

1. Analytical Department, Institute of Inorganic Chemistry, Gliwice.

CHETKOWSKA, Maria; SOSIN, Zofia; STRZESZEWSKA, Irena

Simultaneous determination of zinc and magnesium by complexometric titration. Chem anal 6 no.3:317-322 '61.

1. Analytical Department, Institute of Inorganic Chemistry, Gliwice.

SOSINA, A.M., kand.med.nauk

Clinical and radiographic data on hyperplasia of the thymus gland. Zdrav.Belor. 5 no.7:14-15 Jl '59. (MIRA 12:9)

1. Iz Instituta okhrany materinstva i detstva BSSR (direktor A.L.Rapoport, nauchnyy rukovoditel' - prof. G.L.Dozortseva).
(THYMUS GLAND--DISEASES)

SOSINA, A.M.; LAZYUK, I.I.

Incomplete osteogenesis. Zdrav. Belor. 6 no.3:59-60 Mr '60.
(MIRA 13:5)

1. Iz Belorusskogo nauchno-issledovatel'skogo instituta okhrany materinstva i detstva.
(OSTEOPSATHYROSIS) (PNEUMONIA)

PAUK, A.I.; SHEYBAK, M.I.; SOSINA, A.M.

Subcutaneous emphysema in pneumonia. Zdrav. Bel. 9 no.1: 86 J'63. (MIRA 16:8)
(EMPHYSEMA, PULMONARY) (PNEUMONIA)

SOSINA, Docent B. M.

Sosina, Docent B. M. and B. M. Mayzel' "X-Ray Treatment of Menapause," Akusuer. i Ginekol., No. 3, 1949. Mbr., Belorussian Sci. Res. Inst. Physical Methods Treatment, -c1949-. Mbr., X-Ray Dept., Hd., 3rd Clinical Hosp., -c1949-.

SOSINA, B. M.

"X-Ray Treatment of Menopause" Akusher. i Ginekol., No. 3, 1949. Belorussian Sci. Res. Inst. of Physical Methods of Treatment, -c1949-. Mgr., X-Ray Dept. 3d Clinical Hosp., -c1949.-

SOSINA, B.M.

Motor evacuation of the human stomach from the viewpoint of Pavlovian theory; roentgenologic investigation. Klin. med., Moskva 29 no.9:64-70 Sept 1951. (CLML 21:2)

1. Doctor Medical Sciences. 2. Of the Roentgenological Division (Scientific Supervisor -- B. M. Sosina), Third Clinical Hospital and of the Laboratory of General Physiology (Head -- Prof. A. A. Zubkov), Institute of Theoretical Medicine of the Academy of Sciences Belorussian SSR. (Inst. Theoret + Clin. Med., Minist. Health BSSR.

SOSINA, B.M., professor (Minsk))

Roentgenodiagnosis of benign tumors of the esophagus. Klin.med. 34 no.3:54-56 Mr '56. (MLRA 10:1)

1. Iz kafedry rentgenologii (zav. - prof. B.M.Sosina) Belorusskogo instituta usovershenstvovaniya vrachey (dir. - prof. M.N.Zhukova)
(ESOPHAGUS, neoplasms,
diag., x-ray of benign tumors (Rus))

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EXCERPTA MEDICA Sec 9/Vol 13/5 SURGERY May 59

2518. THE PROBLEM OF ROENTGEN DIAGNOSIS OF BRONCHIAL CYSTS

(Russian text) - Sosina B. M., Sosina A. M. and Volodko M. F. - ZDRAVOOKHR. BELOR. 1957, 4 (42-47)

It is admissible to designate as pulmonary cyst any thin-walled cavity filled with air, fluid or both simultaneously. Uncomplicated bronchial cysts do not present a well defined clinical picture. Roentgenological findings depend on the patency of the bronchus. The clinico-roentgenological manifestations associated with complicated bronchial cysts depend on the character of the complications. In order to prevent the occurrence of severe complications bronchial cysts should be removed by operation. (S)

Сосина, Б.М.

SOSINA, B.M., prof.

Development of roentgenology and radiology in White Russia under the Soviet regime. Vest.rent. i rad. 32 no.5:9-13 S-O '57. (MIRA 11:2)
(RADIOLOGY
in Byelorussia (Rus))

CHERKASOVA, L.S.; SOSINA, B.M.; REMBERGER, V.G.

Metabolism of labile phosphorus compounds in brain tissue in connection with radiation sickness. Dokl. AN BSSR 3 no.1:26-29 Ja '59.
(MIRA 12:3)

1.Predstavleno akademikom AN BSSR T.N. Godnevym.
(PHOSPHORUS) (BRAIN) (RADIATION SICKNESS)

SOSINA, B.M., prof.; PROKHOROVA, Ye.P.

Clinical and radiological diagnosis of an aortic arch located on the right side. Zdrav. Belor. 5 no.1:60 Ja '59. (MIRA 12:7)

1. Iz kafedry rentgenologii Belorusskogo instituta usovershenstvovaniya vrachey na baze oblastnoy bol'nitsy (glavnyy vrach G. A. TSgoyev) i Respublikanskoy bol'nitsy lechsanupravleniya (glavnyy vrach V.I. Khimakova).

(AORTA--ABNORMITIES AND DEFORMITIES)

SOSINA, B.M., prof.; GOREL'CHIK, K.I.

Diagnosis of hernias of the esophageal hiatus of the diaphragm.
Zdrav. Bel. 7 no.3:9-14 Mr '61. (MIRA 14:3)

1. Iz kafedry rentgenologii - radiologii (zaveduyushchiy - prof.
B.M.Sosina) Belorusskogo instituta usovershenstvovaniya vrachey
(direktor - dotsent N.Ye.Savchenko).
(HERNIA)

SOSINA, B.M., professor; REZNIK, A.Ya., dotsent

Causes for a late diagnosis of pulmonary cancer. Zdrav.Bel. no.3:20-25 '62. (MIRA 15:5)

1. Iz kafedry rentgenologii (zaveduyushchiy kafedroy - professor B.M. Sosina) i kafedry terapii (zaveduyushchiy kafedroy - professor A.D. Adenskiy) Belorusskogo instituta.
(LUNGS--CANCER)

SOSINA, M. I.; YELISEYEVA, V. K.

Geology, Stratigraphic - Permian; Paleontology - Permian

New data on the upper Permian period of the Sikhote Alin chain. Dokl. AN SSSR 82 no. 6, 1952. Vsesoyuznyy Nauchno-Issledovatel'skiy Geologicheskiy Institut rcd. 27 July 1951

Monthly List of Russian Accessions, Library of Congress, July 1952. UNCLASSIFIED.

Sosina, N.A.

3

Analysis of hydrocarbon systems by means of their mass spectra. K. I. Zimina, A. A. Polyakova, and N. A. Sosina. *Zhur. Neorg. Khim.* 1, 1204-10(1956).—A mass-spectrometric method is described for analyzing polycomponent hydrocarbon mixts. which involves using a special spectrometer. The method was applied to synthetic mixts. and gave good results, thus showing that it could be applied to the analysis of com. mixts. J. Rovtar Leach

SIMINA, K.I.; POLYAKOVA, A.A.; SOSINA, N.S.

Analysis of hydrocarbon systems from their mass spectra. Zhur. neorg.khim.1 no.6:1264-1270 Je '56. (MLRA 9:10)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut neftyanoy promyshlennosti (VNIINP).
(Hydrocarbons--Spectra)

L 52615-65

ACCESSION NR: AP5009996 UR/0318/65/000/003/0017/0019

AUTHORS: Zimina, K. I.; Turskiy, Yu. I.; Sosina, N. S.; Kurnosova, Ye. V.; Artem, M. V. 18

B

TITLE: Determination of Ional content in oils by IR absorption spectra

SOURCE: Neftepererabotka i neftekhimiya, no. 3, 1965, 17-19

TOPIC TAGS: IR absorption spectrum, spectrometry, additive, oil / IK 10 spectrometer 16 28

ABSTRACT: Ionol, widely used as a stabilizer in motor oils, is manufactured in different countries with varying degrees of purity. Because Ionol may not react with acids or alkalies or may not yield to extraction by absorbents, it is difficult to find a chemical method for quantitative determinations of additive in oils. A spectrometric method is proposed, and from experiments on both imported and domestic Ionol the absorption band at 3640 cm^{-1} (valence oscillation of the OH group) was selected for analysis. The spectra were obtained on an IK-10 spectrometer with LiF prism and slit width of 4 cm^{-1}. A graphical method was used for determining Ionol content, the graph being prepared from artificial standards, Ionol and transformer oil mixed in known proportions. The relative

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L 52615-65
ACCESSION NR: AP5009996

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error of the technique proved to be within 10%. Time for a single determination was 20-30 minutes. The authors conclude that the technique will solve a number of important problems, specifically: 1) permits control of additive concentration in commercial oils, 2) permits determination of necessity of adding Ionol to oils that have been in use for some time, and 3) permits determination of actual conditions under which the additive will be consumed (temperature, pressure, generation of oxidizing gas, presence of oxidizing catalysts). i.e., permits determination of limiting conditions under which the additive may be used. Orig. art. has: 1 figure, 2 tables, and 2 formulas.

ASSOCIATION: VNIINP

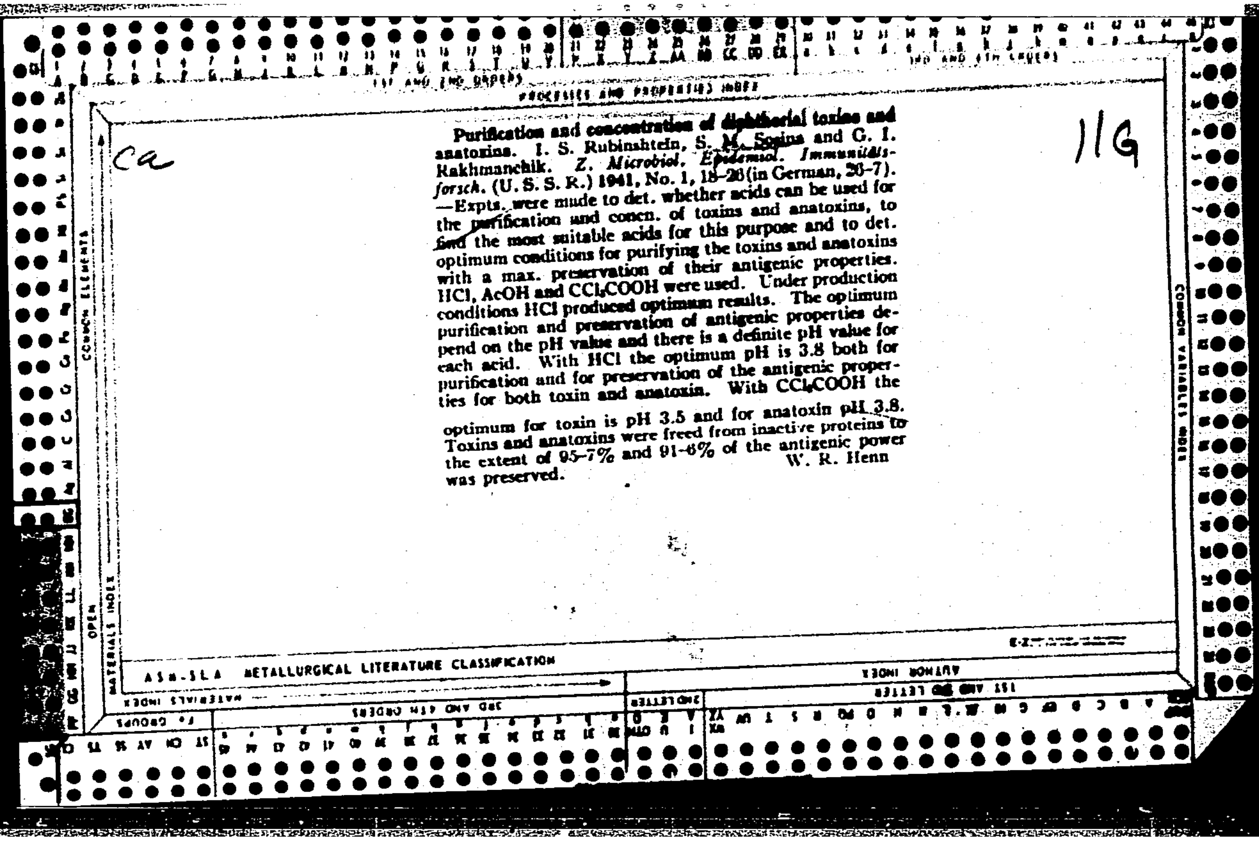
SUBMITTED: 00 ENCL: 00 SUB CODE: FP, OP

NO REF SOV: 001 OTHER: 000

ggz
Card 2/2

LIPSHTEYN, R.A., kand.tekhn.nauk; MIKHEL'SON, A.Ya., inzh.; ZIMINA, K.I., kand. tekhn.nauk; SOSINA, N.S., inzh.

Possibility for regenerating oils inhibited by an additive. Elek. sta. 36 no.10:34-36 O '65. (MIRA 18:10)



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

11G

Purification and concentration of diphtherial toxins and anatoxins. I. S. Rubinshtein, S. M. Sosina and G. I. Rakhmanchik. *Z. Microbiol. Epidemiol. Immunitätsforsch.* (U.S.S.R.) 1941, No. 1, 18-28 (in German, 26-7).—Expts. were made to det. whether acids can be used for the purification and concn. of toxins and anatoxins, to find the most suitable acids for this purpose and to det. optimum conditions for purifying the toxins and anatoxins with a max. preservation of their antigenic properties. HCl, AcOH and CCl_3COOH were used. Under production conditions HCl produced optimum results. The optimum purification and preservation of antigenic properties depend on the pH value and there is a definite pH value for each acid. With HCl the optimum pH is 3.8 both for purification and for preservation of the antigenic properties for both toxin and anatoxin. With CCl_3COOH the optimum for toxin is pH 3.5 and for anatoxin pH 3.8. Toxins and anatoxins were freed from inactive proteins to the extent of 95-7% and 91-6% of the antigenic power was preserved.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

11B

Separation of components of antidiphtheric serum by peptic digestion. S. M. Sosina. *Z. Mikrobiol., Epidemiol. Immunitätsforsch.* (U. S. S. R.) 1942, No. 10, 75. Peptic digestion is not as satisfactory for purification of native serum as the salting-out method. Pseudoglobulin soln. is digested by pepsin to a lesser degree than is the native serum. Peptic digestion of heat-coagulated pseudoglobulin can be used as an addnl. procedure after the salting out, to give an addnl. 30-5% protein removal.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SOSINA, S.M.; CHALENKA, D.K.; LYSUKHA, L.N.; KRASOUSKAYA, A.A.

Local cold-resistant varieties ofyeasts for making fruit and berry wine in White Russia. Vestsi AN BSSR Ser.biial.nav.no.2:101-113 '56. (MIRA 10:1)

(White Russia--Yeast) (Fruit wines)

SOSINA, S.M.

USSR/Chemical Technology - Chemical Products and Their Application. Fermentation Industry. I-12

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2830

Author : Sosina, S.M., Lysukho, L.N.m Krasovskaya, A.A.

Inst : Belorussian Scientific Research Institute of the Food Industry.

Title : Preparation of Fungus Malt on a Barley Medium for the Brewing Industry.

Orig Pub : Tr. Belorussk. n.-i. in-ta pishch. prom-sti, 1957, No 1, 67-73

Abstract : The production technology has been worked out for a fungus malt with the use of barley: crushed barley is stirred with an equal volume of water, and sterilized in an autoclave at a pressure of 1 atmosphere for 1 hour. The sterile slurry is mixed with a well sporulated culture of

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was prepared from [illegible]
1% of enzymatic preparation from Aspergillus oryzae
strain 81. Degustation of the finished beer revealed

Car

USSR/Chemical Technology - Chemical Products and Their Application. Fermentation Industry. I-12

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2830

that the beer prepared with the enzymatic preparation produced with a barley medium, has better gustatory characteristics, being free from extraneous bitterness and of milder flavor. It is noted that both specimens of beer show poor frothing and low froth stability.

SOSINA, S.M.

Growing mold fungi on waste materials from starch manufacture.
Spirt. prom. 24 no.1:11-13 '58. (MIRA 11:3)
(Aspergillus oryzae)

SOSINA, S.M.

Method for a comparative determination of the assimilability of proteins in canned vegetables. Kons.i ov.prom. 15 no.8:38-39 Ag '60. (MIRA 13:8)

1. Belorruskiy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti.

(Food, Canned) (Proteins)

SOSINA, S.M.; PASHKOVSKAYA, M.T.; Prinimali uchastiye: SUPRANOVICH, V.A., mladshiy nauch. sotrudnik; NOVIK, V.G., mladshiy nauch. sotrudnik; TSYGANKOVA, R.I., tekhnik-tekhnolog

Methods for the disinfection of molasses for the production of baker's yeast. Trudy BNIIPPT no.4:113-126 '61. (MIRA 17:10)

SOSINA, S.M.

Camparison method for determining the digestibility of proteins in canned vegetables. Trudy BNIIPPT no.4:127-128 '61.

(MIRA 17:10)

ACC NR: [illegible] SOURCE CODE: UR/0079/66/036/007/1246/1248

AUTHOR: Ivin, S. Z.; Karavanov, K. V.; Lysenko, V. V.; Sosina, T. N.

ORG: none

TITLE: Pentacovalent organofluorophosphorus compounds. II. Alkylamides of alkyltrifluoro- and dialkyldifluoroorthophosphinic acids

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1246-1248

TOPIC TAGS: amine, organic amide, fluorinated organic compound, organic phosphorus compound

ABSTRACT: Alkylamides of alkyltrifluoro- and dialkyldifluoroorthophosphinic acids were synthesized by the action of amines on alkyltetrafluoro- and dialkyltrifluorophosphines in the presence of substances that bond hydrogen fluoride (potassium fluoride or amines). Good yields of the final products were obtained when an amine was used as the hydrogen fluoride acceptor. Regardless of the amount of the original primary amines, only monoamides were formed; di- and triamides could not be isolated. Seven amides were synthesized and characterized. The allylamide of methyltrifluoroorthophosphinic acid added bromine at the double bond, forming the 2,3-dibromopropylamide of methyltrifluoroorthophosphinic acid. Orig. art. has: 1 table. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 04Jun65 / ORIG REF: 002 / OTH REF: 001

Card 1/1 UDC: 547.241

SOSINA, Ye. I.

SOSINA, Ye. I. -- "Agrobiological Characteristics and Regional Distribution of Types of Grapes in Kirgizia." Min Higher Education USSR. Kazakh State Agricultural Inst. Frunze, 1955. (Dissertation for the Degree of Candidate of Agricultural Sciences.)

SO: Knizhnaya letopis', No. 4, Moscow, 1956