KOTLYAREVSKIY, G. P

KOTLYAREVSKIY, G.P., inzhener.

Breakdown of main shafts of hoists. Vest.mash. 37 no.9:27 S '57.
(MIRA 10:9)
(Shafts and shafting) (Hoisting machinery)

KOTLYAREVSKIY, G.P., inzhener.

Causes for the breakdown of main shafts, mine hoists and winches.
[Trudy] TSNIITMASH no.85:129-138 '57. (MLRA 10:9)
(Metals--Fatigue)
(Machiney--Maintenance and repair)

KOTLYAREVSKIY, G.P., inzhener.

Causes for the breakdown of mine compressor crankshafts. [Trudy]
TSNIITMASH no.85:139-143 '57. (MIRA 10:9)
(Cranks and crankshafts) (Metals--Fatigue)
(Mining machinery--Maintenance and repair)

129-58-7-13/17

AUTHOR: Kotlyarevskiy, G. P., Engineer

TITLE: Surface Working of Rolls Should Be Introduced Prior to Chromating of Highly Stressed Components (Vnedrit' obkatku rolikami pered khromirovaniyem vysokonagruzhennykh detaley)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 52-53 (USSR)

ABSTRACT: One of the main causes of lowering of the cyclic strength of chromated components is the presence of residual tensile stresses in the electrolytically deposited chromium layer; the higher these stresses the more will the fatigue strength be lowered. The known method, described by Ryabchenkov (Ref.1), of work hardening by means of rolls of specimens prior to chromating has been verified in experiments (carried out by A. L. Simonova and A. Ya. Popenko). Three groups of specimens of the steels 08, 45 and 40KhN were tested. In one series the specimens were not chromated (9.48 mm dia); in a second series the specimens were machined to 9.28 mm dia and, following that, an 0.1 mm thick chromium layer was deposited; in a third series the specimens were produced in the same way as in the second series but, prior to chromating, they were work

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KOTLYAREVSKIY, G.V.

Using gravity vertical gradients for geological interpretation.
Razved. i prom. geofiz. no.21:56-68 '58. (MIRA 11:10)
(Gravity)

KOTLYAREVSKIY, I. L.

May 48

USSR/Chemistry - Acetylene, Derivatives
Chemistry - Olefins, Hydration of

"Acetylene Derivatives: No 68," I. N. Nazarov, I. L. Kotlyarevskiy, Inst Org Chem, Acad Sci USSR, 6¼ pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 5

Describes hydration and cyclization of 2-tertiobutyl-1,5-hexadiene-3-in. It is hydrated to 2-tertiobutyl-1,5-hexadiene-3-on (I) on heating in a 90% aqueous solution of methanol in the presence of sulfuric acid and mercury sulfate. This in turn is largely cyclized into 1-tertiobutyl-3-methyl-1-cyclopentene-5-on and partly forms 2-tertiobutyl-5-metoxy-1-hexene-3-on (II). Free I was obtained by the removal of methanol from II with n-toluenethiocarbonic acid. I cyclizes more readily than 2-methyl-1,5-hexadiene-3-on, and, consequently, the replacement of methyl by tertiary butyl facilitates this cyclization. Submitted 7 Apr 1947.

PA 8/49T62

KOTLYAREVSKIY, I. L.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000825410005-

USSR/Chemistry - Acetylene Derivatives
Chemistry - Carbinol-methyl-phenyl-vinylethynyl

May 48

"Acetylene Derivatives, No 69," I. N. Nazarov, I. L. Kotlyarevskiy, Inst Org Chem, Acad Sci USSR, 7¼ pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 5

Describes reactions of methyl-phenyl-vinylethynyl-carbinol (I). It is easily dehydrated by acid reagents to 5-phenyl-1,5-hexadiene-3-in but the latter oxidizes and polymerizes very readily so that its isolation is difficult. On heating in a methanol solution, in the presence of a small quantity of sulfuric acid, I is transformed into its methyl ester, the yield being about 60%. Like its aliphatic analogues, I, when heated in a solution of methanol in the presence of sulfuric acid, isomerizes into the corresponding divinyl-ketone (5-phenyl-1,4-hexadiene-3-on), which unites a methanol molecule to the undisplaced vinyl radical, forming 1-metoxy-5-phenyl-4-hexene-3-on. Describes hydration, ozonization and other reactions of compounds prepared. Submitted 7 Apr 1947

PA 8/49T63

KOTLYAREVSKIY, I. L.

USSR/Chemistry - Acetylene, Derivatives May 48
Chemistry - Olefins, Hydration of

"Acetylene Derivatives, No 70," I. N. Nazarov, I. L. Kotlyarevskiy, Inst Org Chem Acad Sci USSR, $5\frac{1}{2}$ pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 5

Describes hydration and cyclization of 5-phenyl-1,5-heptadiene-3-in. (I). The action of magnesiumbromine-vinylacetylene on ethyl-phenyl-ketone produces a 90% yield of ethyl-phenyl-vinylethynyl-carbinol which on vacuum distillation in the presence of potassium busulfate, is dehydrated into I, the yield being 85%. I is hydrated into 5-phenyl-1,5-heptadiene-4-on by heating in a 90% methanol solution in the presence of sulfuric acid and mercury sulfate. This in turn canbe cyclized by phosphoric acid into 1-phenyl-2,3-dimethyl-1-cyclopentene-5-on. Submitted 7 Apr 1947.

PA 8/49T64

KOTLYARAVSKIY, I. I.

USSR/Chemistry - Acetylene
Chemistry - Synthesis

May/Jun 49

"Acetylene Derivatives: No 90, Mechanism of the Hydration and Cyclization of Dienins: XIX, Hydration and Cyclization of 5, 6-Diphenyl-1, 5-Hexadiene-3-yne," I. N. Nazarov, I. I. Kotlyaravskiy, Inst of Org Chem, Acad Sci USSR, $5\frac{1}{2}$pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 3

Describes synthesis of phenylbenzylvinylethinylcarbinal and its dehydration into 5,6-diphenyl-1, 5-hexadiene-3-yne. Hydration of dienin yields 5,6-diphenyl-1, 5-hexadiene-4-on which is poured off and cyclized, by using acids, into 1, 2-diphenyl-3-methyl-1-cyclopentene-5-on. Submitted 20 Mar 48.

PA 56/49T11

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Derivatives of acetylene CXIV. The mechanism of hydration and cyclization of the dienynes. 23. The synthesis of 1,2-bis(p-hydroxyphenyl)-3-methyl-1-cyclopenten-5-one by the method of hydration and cyclization of the dienynes. I. N. Nazarov and I. L. Kotlyarevskii. *J. Gen. Chem. U.S.S.R.* 20, 1491-1500(1950)(Engl. translation).—See *C.A.* 45, 1963h. **CXV. The mechanism of hydration and cyclization of dienynes. 24. The hydration of 5-phenyl-6-methyl-1,5-heptadien-3-yne to give 5-phenyl-6-methyl-1,5-heptadien-4-one, and its cyclization to give 1-phenyl-2,2,3-trimethyl-3-cyclopenten-5-one. A new type of cyclization of substituted vinyl allyl ketones which do not have free hydrogens in the vinyl radical.** *Ibid.* 1501-8.—See *C.A.* 45, 1964e. **CXVI. The mechanism of the hydration and cyclization of dienynes. 25. The hydration of 5-*tert*-butyl-6-methyl-1,5-heptadien-3-yne and the cyclization of the 5-*tert*-butyl-6-methyl-1,5-heptadien-4-one thus formed to give 1-*tert*-butyl-2,2,3-trimethyl-3-cyclopenten-5-one.** *Ibid.* 1509-15.—See *C.A.* 45, 1965. R. M. S.

KOTLYAREVSKII, I. L.

"Acetylene derivatives. 115. Mechanism of hydration and cyclisation of dienynes. XXIV. Hydration of 5-phenyl-6-methyl-1, 5-heptadien-3-yne to 5-phenyl-6-methly-1, 5-heptadien-4-one and its cyclisation to 1-phenyl-2-2, 3-trimethyl-Δ 3,4-cyclopenten-5-one. A new type of cyclisation of substituted vinyl allyl ketones not possessing free hydrogens in the vinyl radical." I. N. Nazarov and I. L. Kotlyarevskii. (p. 1441)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1950, Vol 20, No 20.

AII-1

6A

Derivatives of acetylene. CXVI. Mechanism of hydration and cyclisation of dienynes. XXV. Hydration of 6-methyl-5-tert.-butylhepta-1 : 5-dien-3-yne and cyclisation of the 6-methyl-5-tert.-butylhepta-1 : 5-dien-4-one thus formed to give 2 : 2 : 3-trimethyl-1-tert.-butylcyclopent-3-en-5-one. I. N. Nazarov and I. I. Kotlyarevsky (*J. Gen. Chem. USSR*, 1950, **20**, 1449—1455 (U.S. transl., 1505—1515). $CH_2{:}CH{\cdot}C{:}C{\cdot}MgBr$ and $COPr^iBu^t$ give 2-methyl-3-*tert.*-butylhept-6-en-4-yn-3-ol in good yield, which is dehydrated to 2-methyl-3-*tert.*-butylhepta-2 : 6-dien-4-yne, hydrogenated under the usual conditions to 2-methyl-3-*tert.*-butylhept-2-ene. The dienyne is hydrated to 2-methyl-3-*tert.*-butylhepta-2 : 6-dien-4-one, easily cyclised to 2 : 2 : 3-trimethyl-1-*tert.*-butyl*cyclo*pent-3-en-5-one. Hydrogenation of the dienone has a sharply stepwise character, the unsubstituted alkyl radical being hydrogenated very rapidly, whilst the fully substituted and strongly branched vinyl radical is hydrogenated with extreme slowness. Hydrogenation of the *cyclo*pentenone smoothly yields 2 : 2 : 3-trimethyl-1-*tert.*-butyl*cyclo*pentan-5-one, the structure of which is established by oxidation.

Dropwise addition of MeI to a mixture of $NaNH_2$ and $COPr^i_2$ which has been kept under boiling Et_2O for 4 hr. gives pentamethylacetone, converted by $CH_2{:}CH{\cdot}CH{:}C{\cdot}MgBr$ in Et_2O at 40° into 2-*methyl*-3-tert.-*butylhept*-6-*en*-4-*yn*-3-*ol*, $C_{12}H_{20}O$ (I), b.p. 79—79·2°/6 mm., d_4^{20} 0·8880, n_D^{20} 1·4782. Hydrogenation (Pt in AcOH) of I rapidly gives 2-*methyl*-3-tert.-*butylheptan*-3-*ol*, $C_{12}H_{26}O$, b.p. 79°/6 mm., d_4^{20} 0·8565, n_D^{20} 1·4578. I is dehydrated by H_3PO_4 (*d* 1·705) at room temp. and then at 60—65° to 2-*methyl*-3-tert.-*butylhepta*-2 : 6-*dien*-4-*yne*, m.p. 62·5—63°/6·5 mm., d_4^{20} 0·8250, n_D^{20} 1·4805 (with some cyclic products), which polymerises quickly to a fine film in the air, slowly in a sealed ampoule. It is hydrogenated (Pt in MeOH) only to 2-*methyl*-3-tert.-*butylhept*-2-*ene*, $C_{12}H_{24}$, b.p. 75—75·5°/11 mm., d_4^{20} 0·795, n_D^{20} 1·4425, which immediately decolorises Br in $CHCl_3$. The dienyne is hydrated and cyclised by H_3PO_4 (*d* 1·735) at 60—65° to 2 : 2 : 3-*trimethyl*-1-tert.-*butylcyclopent*-3-*en*-5-*one*, $C_{12}H_{20}O$ (II), b.p. 90—93°/6 mm., d_4^{20} 0·9211, n_D^{20} 1·4780; it does not give a semicarbazone or a 2 : 4-dinitrophenylhydrazone. Treating the dienyne with $HgSO_4$ and H_2SO_4 in MeOH at 65° affords 2-*methyl*-3-tert.-*butylhepta*-2 : 6-*dien*-4-*one*, $C_{12}H_{20}O$, b.p. 77—80°/6 mm., d_4^{20} 0·8860, n_D^{20} 1·4717 (which does not give ketonic deriv.), and a fraction containing also the corresponding OMe deriv. which is transformed by H_3PO_4 into II. It is hydrogenated (Pt in MeOH) to 2-*methyl*-3-tert.-*butylheptan*-4-*one*, $C_{12}H_{24}O$, b.p. 70—72°/6 mm., d_4^{20} 0·8476, n_D^{20} 1·4455. II is hydrogenated (Pt in MeOH) to 2 : 2 : 3-*trimethyl*-1-tert.-*butylcyclopentan*-5-*one*, $C_{12}H_{22}O$, b.p. 87—89°/6 mm., d_4^{20} 0·8815, n_D^{20} 1·4592. Ozonisation of II in $CHCl_3$ and decomp. of the ozonide by H_2O_2 at 60—65° gives $H{\cdot}CO_2H$ (44% of the theoretical amount) and 5-*keto*-2 : 2 : 4 : 4-*tetramethylhexane*-3-1-*carboxylic acid*, b.p. 124—125°/1·5 mm., n_D^{20} 1·4506 (2 : 4-*dinitrophenylhydrazone*, $C_{17}H_{24}O_6N_4$, m.p. 194°). It is oxidised by Br and NaOH to 2 : 2 : 4-*trimethylpentane*-3 : 4-1 : 2-*dicarboxylic acid*, $C_{10}H_{18}O_4$, m.p. 138°.

H. Wren.

KOTLYAREVSKY, I. L.

USSR/Chemistry - Catalysts Jul 52

"The Catalytic Conversions of Cyclohexanone and 1,3-Dimethylcyclopentane-5-One Over Aluminum Oxide," I. N. Nazarov, I. L. Kotlyarevsky, N. V. Kuznetsov, Inst of Org Chem, Acad Sci USSR

"Zhur Obshch Khim" Vol 22, No 7, pp 1147-1149

At temps of 390°-450°, over aluminum oxide, cyclohexanone is converted, with a high yield of up to 75%, to phenol and cyclohexene. Under analogous conditions, 1,3-dimethylcyclopentane-5-one is converted to 1,3-dimethylcyclopentene (yield of

229T38

approximately 30%), and a small amt of 1,3-dimethylcyclopentadiene.

229T38

KOTLYAREVSKIY, I. L.

Chem

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 195
Organic Chemistry

The catalytic transformations of cyclohexanone and 2,4-dimethylcyclopentanone over aluminum oxide. I. N. Nazarov, I. L. Kotlyarevskiĭ, and N. V. Kuznetsov. *J. Gen. Chem. U.S.S.R.* 22, 1193-5(1952)(Engl. translation). See *C.A.* 47, 6870*f*. H. L. H.

AF
7-28-54

NAZAROV, I.N.; KOTLYAREVSKIY, I.L.

Synthesis of polycyclic compounds related to steroids. Report no.25. Synthesis of compounds related to oestrone, through diene condensation. Izv.SSSR. Otd.khim.nauk no.6:1100-1110 N-D '53. (MLRA 6:12)

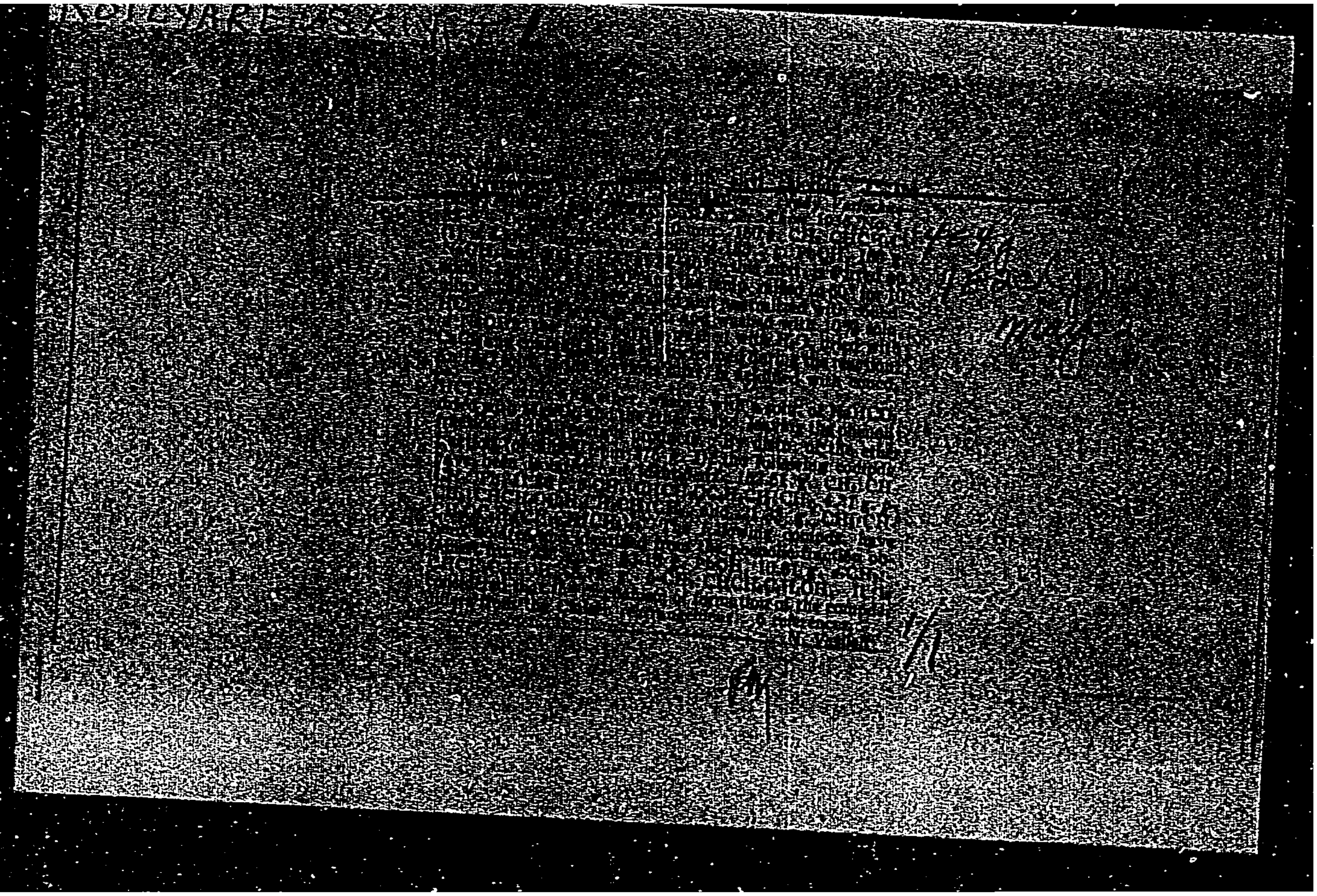
1. Institut organicheskoy khimii Akademii nauk SSSR.
(Oestrone) (Condensation products (Chemistry))

KOTLYAREVSKIY, I. L.

Acetylene derivatives. CLX. Condensation of aldehydes and ketones with acetylene under pressure. New method of synthesis of acetylenic alcohols. I. N. Nazarov, I. L. Kotlyarevskii, and V. F. Ryabchenko (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* 23, 1900-4(1953); cf. U.S. 2,163,720, *C.A.* 33, 7815; *C.A.* 48, 12680a.—A new method of prepn. of acetylenic alcs. consists of satn. with C_2H_2 of a mixt. of powd. KOH in Et_2O in a metallic reactor at 5-10 atm., after which an aldehyde or ketone is added and the stirring continued for 0.5 hr., after which the pressure is released and the product is treated with H_2O (1-2 parts in respect to KOH used), neutralized with CO_2 and extd. with Et_2O. If the KOH-Et_2O mixt. contains small amts. of aliphatic alcs. the yields of acetylenic alcs. rise by 10-20%. Thus 65 g. KOH in 250 ml. Et_2O satd. with C_2H_2 at 0° at 10 atm., treated over 60 min. with 28 g. AcH, stirred 20 min. at 0° at 10 atm. C_2H_2, gave 20.2% *1-butyn-3-ol*, b. 107-8°; addn. of 3 ml. 95% EtOH to original mixt. gave 43% yield. EtCHO similarly gave 45.2% *1-pentyn-3-ol*, b. 124°, n_D^{20} 1.4332, with 5 ml. EtOH being added to the original mixt. PrCHO gave 51.5% *1-hexyn-3-ol*, b. 143.5°, n_D^{20} 1.4350; iso-PrCHO gave 47.5% *4-methyl-1-pentyn-3-ol*, b. 133°, n_D^{20} 1.4353. Hydrocinnamaldehyde gave 54.5% *5-phenyl-1-pentyn-3-ol*, b_4 125-6°, n_D^{20} 1.5350, when a little EtOH was added to the original mixt. Similarly were prepd.: 74.5% *4-methyl-1-hexyn-3-ol*, b. 154-4.5°, n_D^{20} 1.4378; *1-nonyn-3-ol*, b_4 89-91°, n_D^{20} 1.4444; *dimethylethynylcarbinol*, 93%, b. 103.5°, n_D^{20} 1.4211; *3-methyl-1-pentyn-3-ol*, b. 121.5°, n_D^{20} 1.4303; 52% *3-ethyl-1-pentyn-3-ol*, b. 137-8.4°, n_D^{20} 1.4364; *3-propyl-1-hexyn-3-ol*, b. 173-4°, n_D^{20} 1.4475; 65% *4-methyl-3-isopropyl-1-pentyn-3-ol*, b. 165.5°, n_D^{20} 1.4500; *1-ethynyl-1-cyclopentanol*, b. 157°, m. 27°; 90.7% *1-ethynyl-1-cyclohexanol*, b. 179°, m. 31-2°; 70% *3-phenyl-1-butyn-3-ol*, b. 82-3°, m. 49°; 5.2% *3,5-dimethyl-4-hexen-1-yn-3-ol*, b. 65-6°, n_D^{20} 1.4620, from mesityl oxide. G. M. K.

KOTLYARESKY

[illegible]



KOTLYAREVSKIY

KOTLYAREVSKIY, I.L.

Hydration of acetylene. Trudy Vost.-Sib.fil. AN SSSR no.4:58-66
'56. (MLRA 9:12)
(Hydration) (Acetylene)

KOTLYAREVSKIY, I. L.

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26693.

Author : Nazarov, I.N., Kotlyarevskiy, I.L., Ryabchenko, V.F.

Inst : Academy of Sciences of USSR.

Title : Derivatives of Acetylene. Report 174. Condensation of Aldehydes and Ketones with Acetylene under Pressure.

Orig Pub : Izv. AN SSSR, Otd. khim. n., 1956, No. 8, 960 - 966.

Abstract : The application of pressure to the condensation of aliphatic, alicyclic, heterocyclic, aromatic and aliphatic-aromatic ketones with acetylene in presence of KOH increases the acetylene in presence of KOH increases the reaction speed several times and rises the yield considerably. Aliphatic aldehydes can

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USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26693.

10 gage atm, 80 min., 120 g of methylisopropylketone, 60 min., 2,3-dimethylpentine-4-ol-3, 82%, 133°, $n^{16}D = 1.4590$; 50 g, 300 mlit, 1 mlit, 10°, 10 gage atm, 80 min., 70 g of $CH_3COC_3H_7$, 60 min., 3-methylhexine-1-ol-3, 84%, 138 to 140°, 1.4290; 50 g, 300 mlit, 1 mlit, 10°, 10 gage atm, 80 min., 60 g of $C_3H_7COC_3H_7$, 60 min., 3-propylhexine-1-ol-3, 86%, 17 , 1.4375; 50 g, 300 mlit, 1.5 mlit, 10° 10 gage atm, 80 min., 60 g of iso-C_3H_7CC H_7-iso, 3 hours, 3-isopropyl-4-methylpentine-1-ol-3, 86%, boil. p. 165°; 60 g, 300 mlit, 1 mlit, 10°, 10 gage atm., 80 min., 65 g of $CH_3COC_9H_{19}$, 1 hour, 3-methyldodecine-1-ol-3, 94%, 127 to 128°/11 mm, 1.4474; also of $CH_3COC_6H_{13}$ -3-hexylbutine-1-ol-3, 92%, 78°/5 mm, 1.4408;

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USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26693.

produced by hydrogenation of 10 g of III in 15 mlit of CH_3OH with Pd. See report 173 in RZhKhim, 1956, 64827.

Card 7/7

[illegible]

FISHER, L.B.; TERPUGOVA, M.P.; KOTLYAREVSKIY, I.L.

Catalytic dehydrogenation of 2,3-dimethylbutane. Izv. vost. fil. AN SSSR no.9:53-56 '57. (MIRA 11:1)

1. Vostochno-Sibirskiy filial AN SSSR.
(Butane) (Dehydrogenation)

KOTLYAREVSKIY I.L.

KOTLYAREVSKIY, I.L.; ZANINA, A.S.; LIPOVICH, V.G.

Aromatization of divinylacetylene. Izv.vost.fil.AN SSSR no.4/5:90-99 '57. (MLRA 10:9)

1. Vostochno-Sibirskiy filial Akademii nauk SSSR.
(Acetylene) (Aromatic compounds)

KATLYAREVSKIY, I. L.

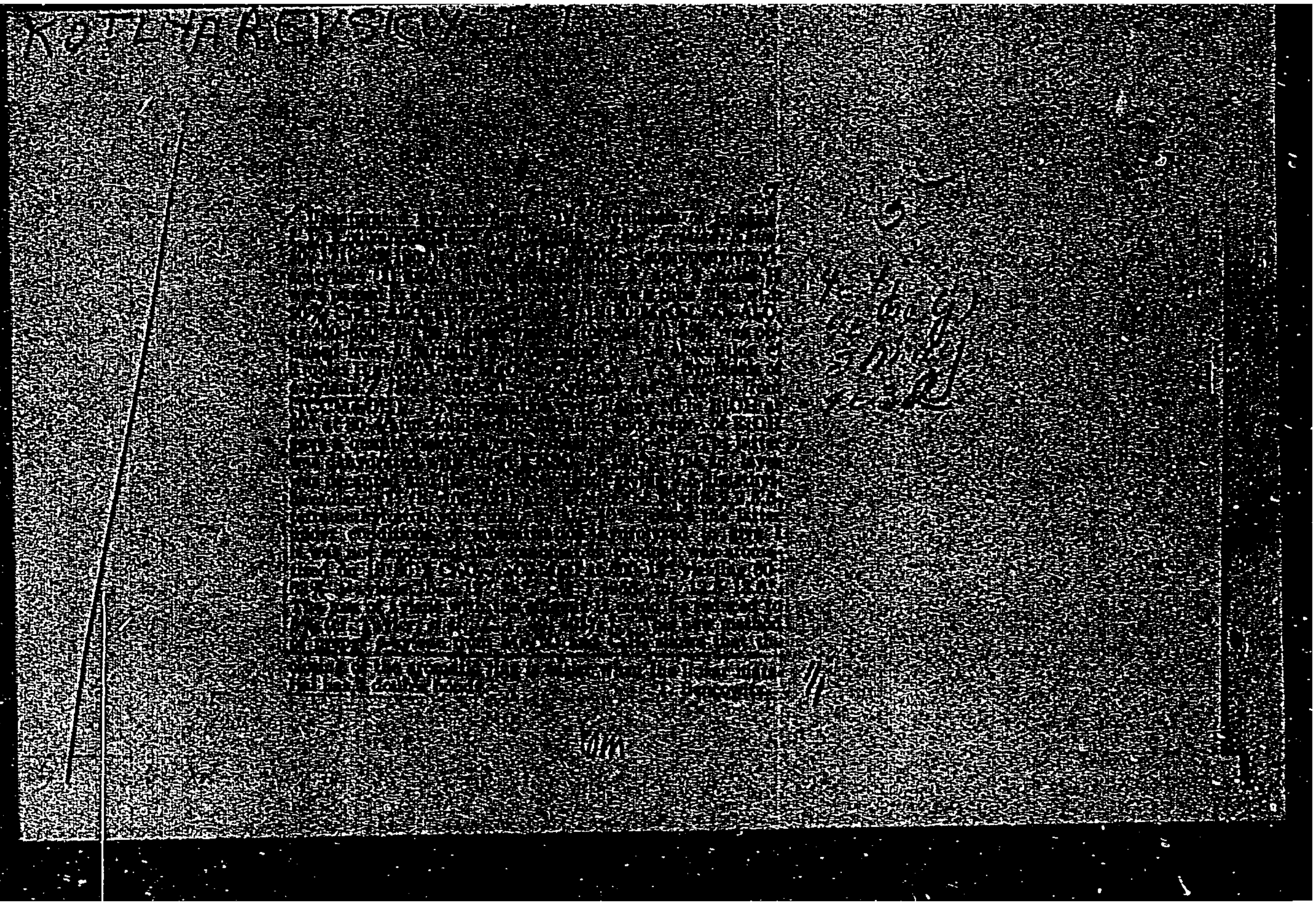
[illegible]

KOTLYAREVSKIY, I.L.

KOTLYAREVSKIY, I.L.; ZANINA, A.S.

Synthesis of n-xylol. Zhur. prikl. khim. 30 no.9:1356-1361 S '57.
(Xylene) (MIRA 11:1)

KOTLYAREVSKIY



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KOTLYAREVSKIY, I.L.; SAMOYLOVA, A.A.; SHERGINA, N.I.

Condensation of metacresol with allyl chloride. Izv. Sib. otd.
AN SSSR no.6:54-58 '58. (MIRA 11:9)

1. Vostochno-Sibirskiy filial AN SSSR.
(Cresol) (Allyl chloride) (Condensation products (Chemistry))

IVANOV, G.A.; VERESHCHAGIN, L.I.; KOTLYAREVSKIY, I.L.

Continuous method of halowax production. Izv. Sib. otd. AN SSSR no.8:98-102 '58. (MIRA 11:10)

1.Vostochno-Sibirskiy filial AN SSSR.
(Naphthalene)

FISHER, L.B.; TERPUGOVA, M.P.; KOTLYAREVSKIY, I.L.

Dehydrogenation of butane di-derivatives; studying the first stage of 2,3-dimethylbutane dehydrogenation. Izv.Sib.otd. AN SSSR no.9:32-38 '58. (MIRA 11:11)

1. Vostochno-Sibirskiy filial Akademii nauk SSSR.
(Butane) (Dehydrogenation)

AUTHORS: Kotlyarevskiy, I.L. and Zanina, A.S. SOV/80-59-1-33/44

TITLE: Synthesis of β-Methyl Naphthalene (Sintez β-metilnaftalina)
Sixth Communication (Soobshcheniye VI)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 207-210 (USSR)

ABSTRACT: In the previous papers of this series (this is the 6th one from the series of unsaturated hydrocarbons studies), the authors showed that the divinylacetylene and its alkyl derivatives can be completed into aromatic hydrocarbons under the effect of certain catalyzers, such as aluminum oxide, chrome oxide, etc. This reaction can be used for the synthesis of aromatic hydrocarbons with a prescribed structure. The authors carried out the aromatization of isopropenylcyclohexenylacetylene which resulted in obtaining β-methyl naphthalene. When the 2-methyl-4-(cyclohexene-1-yl)-butene is used in the process of aromatization the yield and individuality of the substance are increased. There are 2 tables and 4 Soviet references.

SUBMITTED: March 2, 1957

Card 1/1

KOTLYAREVSKIY, I.L.; VOLKOV, A.N.; FISHER, L.B.

Laboratory method for producing 2,3-dimethylbutane by the alkylation of isobutane by ethylene. Izv. Sib. otd. AN SSSR no.3:62-66 '59.
(MIRA 12:8)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya Akademii nauk SSSR.
(Butane) (Ethylene) (Alkylation)

KOTLYAREVSKIY, I.L.; VOLKOV, A.N.; FISHER, L.B.

Alkylation of butane and isobutane by ethylene. Izv.Sib.otd. AN SSSR no.4:64-70 '59. (MIRA 12:10)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya Akademii nauk SSSR.
(Butane) (Ethylene) (Alkylation)

5(3)

AUTHORS: Kotlyarevskiy, I. L., Vereshchagin, L. I. SOV/62-59-4-24/42

TITLE: Preparation of Pyridinic Bases by Interaction of Dimethylvinylethinyl Carbinol With Ammonia (Polucheniye piridinovykh osnovanĭ vzaimodeystviyem dimetilviniletinilkarbinola s ammiakom)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 4, pp 715-720 (USSR)

ABSTRACT: In the present work the possibility of a synthesis of pyridinic bases was investigated by a catalytic condensation of 2-methylhexadiene-2,5-in-3 and dimethylvinylethynyl carbinol with ammonia. It was found that at 410-520° 2-methylhexadiene-2,5-in-3 with ammonia yields a small number of pyridinic bases on the catalysts $Cr_2O_3/MgO/Al_2O_3$ (18 : 2 : 80), $CdHPO_4/CaHPO_4$ (20 : 80), CdO/Al_2O_3 (30 : 70), and Cd/Al_2O_3 (20 : 80). The reaction with dimethylvinylethynyl carbinol shows a considerably better progress. On the catalysts $Cr_2O_3/MgO/Al_2O_3$ (18 : 2 : 80), CdO/Al_2O_3 (30 : 70), $CdHPO_4/CaHPO_4$ (20 : 80), $CdCrO_4/Al_2O_3$ (20 : 80),

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Preparation of Pyridinic Bases by Interaction of Dimethylvinylethinyl Carbinol With Ammonia SOV/62-59-4-24/42

Cd/Al_2O_3 (20 : 80), Al_2O_3, and K = 16 a mixture of pyridinic bases is formed at 350-520°. Under optimum conditions this mixture consists mainly of 2,4-dimethyl pyridine, 2,6-dimethyl pyridine, and 2,4,6-trimethyl pyridine. Table 1 shows the effect of the temperature, reaction rate, and molar ratio of the reagents on the yield of the catalysate and light pyridinic bases on $Cr_2O_3/MgO/Al_2O_3$. Thus it can be seen that the optimum reaction conditions are 430°, reaction rate 0.50 h^{-1} and the molar ratio ammonia : carbinol = 3.2 : 1. Upon distillation of 103.5 g pyridinic bases, which were obtained on the chromium catalyst under optimum conditions, 49.5 % individual pyridinic bases were separated (Table 3). The effect of temperature and reaction rate on the yield of the catalysate and light pyridinic bases on CdO/Al_2O_3 is shown in table 2. Here the optimum conditions are 360° and 0.7 h^{-1}. Upon distillation of 59.2 g of the catalysate obtained under optimum conditions 75 % light bases were precipitated (Table 4). Mixed picric samples which were obtained on chromium and cadmium catalysts showed no depression of the melting

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Preparation of Pyridinic Bases by Interaction of Dimethylvinylethinyl Carbinol With Ammonia

SOV/62-59-4-24/42

temperatures. Table 5 shows the effect of the catalyst composition on the yield of the bases. There are 5 tables and 17 references, 3 of which are Soviet.

ASSOCIATION: Vostochno-sibirskiy filial Akademii nauk SSSR (East Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: July 16, 1957

Card 3/3

VERESHCHAGIN, L.I.; VASIL'YEV, Ye.K.; NAKHMANOVICH, A.S.; KOTLYAREVSKIY, I.L.

Catalytic production method and some physical characteristics of 2,4- and 2,6-dimethylpyridine and 2,4,6-trimethylpyridine. Izv. Sib. otd. AN SSSR no.6:89-94 '59. (MIRA 12:12)

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

KOTLYAREVSKIY, I.L.

Dehydration of propylene glycol, isobutylene glycol, methylethylethylene glycol and their derivatives. Izv. Sib. otd. AN SSSR no.8:43-49 '59.
(MIRA 13:2)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR.
(Glycols) (Dehydration (Chemistry))

KOTLYAREVSKIY, I.L.; VASIL'YEV, Ye.K.; VERESHCHAGIN, L.I.

Some physical characteristics of 2-methyl-6-R-pyridines. Izv. Sib. otd. AN SSSR no.9:52-55 '59 (MIRA 13:3)

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

5(1,3) SOV/153-2-4-25/32

AUTHORS: Kotlyarevskiy, I. L., Fisher, L. B., Zanina, A. S., Terpugova, M. P., ~~Volkov, A. N.,~~ Shvartsberg, M. S.

TITLE: Synthesis of Several Monomers on Alumochromium Catalysts

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 608 - 613 (USSR)

ABSTRACT: A report on this paper was given at the All-Union Conference on "Ways of Synthesis of Initial Products for the Production of High Polymers" which took place in Yaroslavl' from September 29 to October 2, 1958. The results of the catalytic synthesis of 2,3-dimethyl-butadiene-1,3 as well as of monomers of the type of p-xylene from acetylene derivatives are given. The substance mentioned at first can be used in the production of special rubber types (Ref 1). It could not be obtained by the production methods so far used. The diagram (see Diagram) being worked at by the authors consists of two stages. The first one (Ref 2) yielded not more than 15% of the end product. In spite of numerous patents (Ref 3), a thorough description of reaction conditions is still missing. Therefore, the authors determined the optimum conditions of isobutane alkylation with ethylene

Card 1/4

in the presence of aluminum chloride. Under these conditions (48 - 51°, 7 - 9 atm, 1.5 kg isobutane, 145 g ethylene, 40 g C_2H_5Cl, 5 g $AlCl_3$, 2 hours) the yield of 2,3-dimethyl-butane rises to 47%. The reaction is very sensitive to temperature (only 1/3 of the alkylate yield at 35°). The catalyst can be used 5 to 6 times without reducing the quantity of alkylate or of 2,3-dimethyl-butane. Ethylene has to be added during the whole process: its partial pressure must not exceed 0.5 - 0.7 atm, or otherwise the 2,3-dimethyl-butane content in the alkylate decreases rapidly. The addition of 1-3% C_2H_5Cl accelerates the process. Isobutane alkylation with ethylene at a high temperature proceeds at a pressure of 100 - 200 atm according to a radical mechanism, and is accelerated by radical donors. It was carried out by the authors in the presence of C_2H_5Cl (for the first time) in a special, continuously working plant. The alkylate yield (computed for ethylene) reached 170-180% under optimum conditions (450°, 200 atm, reaction time 25 minutes, weight ratio isobutane : ethylene = 10 : 1, initiator quantity 2.5%). 2,2-Dimethyl-butane (32-35% of the alkylate) was the main product; 2,3-dimethyl-butane amounted to 8-10% of the alkylate. The preparation of 2,3-dimethyl-butadiene-1,3 from 2,3-dimethyl-butane proceeds in two stages: a) Dehydration with the formation of two olefines: 1) tetramethyl-ethylene, and 2) 2,3-dimethyl-butene-1. b) Dehydration of the olefines to the end product. This reaction has not been considered in publications (except for the reference in the patent (Ref 5)). The authors investigated the first stage thoroughly on an alumochromium-potassium catalyst. The specifications for its production were provided by M. N. Marushkin (deceased) (IOKh AN SSSR = Institute of Organic Chemistry AS USSR). This catalyst showed the highest activity at 550°. The catalyzate reached a 87% yield with a content of unsaturated hydrocarbons of 60-67%. The investigation of the second stage has not yet been completed. An aromatization diagram of divinyl-acetylene-hydrocarbons is given. Several mono-, bi-, and tricyclic hydrocarbons with a prescribed structure were produced on the basis of the diagram. A diagram of the reactions of the synthesis of p-xylene from acetylene and acetone is suggested. Since there is no demand for acetone in the USA because of increasing phenol production, Synthesis of Several Monomers on Alumochromium Catalysts SOV/153-2-4-26/32

and its price according to the Sergeyev method is already 1/3 - 1/4 of the present one, the synthesis method mentioned above might become useful for industry. In conclusion, a simple way of synthesis for polyphenyl systems is suggested. Moreover, the Favorskiy reaction is mentioned in the paper. There are 11 references, 5 of which are Soviet.

ASSOCIATION: Vostochno-Sibirskiy filial SO AN SSSR (East Siberian Branch of the **Siberian** Department of the Academy of Sciences, USSR)

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5(3) SOV/79-29-8-39/81

AUTHORS: Kotlyarevskiy, I. L., Shvartsberg, M. S.

TITLE: Unsaturated Hydrocarbons. VII. Synthesis of n-Methyl-diphenyl

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2659-2643 (USSR)

ABSTRACT: The authors were interested in the application of the catalytic aromatization reaction carried out in the papers of references 1 and 2 for the synthesis of the polyphenyl systems, the carbons of the diphenyl-triphenyl series, and others. The attempt at carrying out the cyclization of the 2-methyl-5-phenyl-hexanediol-2,5 into the p-methyl-diphenyl was unsuccessful, since it yielded mixtures (Refs 5,6,7). In the present paper, the following synthesis of n-methyl-diphenyl (I) by means of aromatization of compound (II) or its hydrogenation products (III) and (IV) according to the scheme was suggested: the diol (II) can be obtained, according to Grignard (Ref 8), from 3-methylbutin-1-ol-3 and acetophenone, or according to the reaction of Favorskiy (Ref 9), in smaller yield. The aromatization of (II) probably takes place via compound (V) by dehydration. This aromatization was carried out on the catalyst $MgO(Cr_2O_3)Al_2O_3$(2:18:80) at

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380-510°, but the maximum yield was 11-13% only. In order to increase it, the diol (II) was transformed, as previously, by hydrogenation with 2 moles of hydrogen into the glycols (III) and (IV). Thus, the yields were 42 and 46.5%, respectively, in the aromatization of the glycol (III) at 482° and of the glycol (IV) at 550°. The structure of the n-methyl-diphenyl was confirmed by oxidation with permanganate into the n-phenyl benzoic acid as well as by spectrum analysis, in accordance with the constants available in publications. It was shown by catalytic treatment of glycol (IV) on quartz, that the aromatization of the glycols (II), (III), and (IV) is of catalytic nature. Finally, the authors expressed their gratitude to A. S. Nakhmanovich for his assistance in taking the absorption spectra and to Yu. M. Fayershteyn for carrying out a number of analyses. There are 2 figures, 1 table, and 16 references, 8 of which are Soviet.

ASSOCIATION: Institut khimii Vostochno-Sibirskogo filiala Akademii nauk SSSR (Institute of Chemistry of the East-Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: May 29, 1958

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KOTLyAREVSKIY, I.L.

PHASE I BOOK EXPLOITATION SOV/4579

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

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

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

Editorial Board: I.P. Bardin (Deceased) Chief Ed., Academician; M.A. Lavrent'yev, Academician; S.I. Vol'fkovich, Academician, V.I. Dikushin, Academician; V.S. Nemchinov, Academician; V.I. Veyts, Corresponding Member, Academy of Sciences USSR; O.D. Levitskiy, Corresponding Member, AS USSR; N.N. Nekrasov, Corresponding Member, AS USSR; L.V. Pustovalov, Corresponding Member, AS USSR; T.S. Khachaturov, Corresponding Member, AS USSR; N.F. Rostovtsev, Academician, VASKhNIL; A.E. Popov, Corresponding Member, Academy of Building and Architecture USSR; L. Ye. Grafov, Deputy Chairman, Gosplan RSFSR; A.D. Gashev, Member, Gosplan RSFSR; A. Ye. Probst, Professor; V.F. Vasyutin, Professor; V.A. Krotov, Professor; P.V. Vasil'yev, Doctor of Economic Sciences; G.I. Lyudogovskiy, Candidate of Technical Sciences; P.A. Letunov, Candidate of Geological and Mineralogical Sciences; and M.G. Shkal'nikov, Candidate of Economic Sciences; Editorial Board of this volume: S.I. Vol'fkovich (Resp. Ed.); G.V. Uvarov, Deputy Chairman, State Committee on Chemistry, Council of Ministers USSR; and V.F. Komarov, Docent; Ed. of Publishing House: A.L. Bankvitser; Tech. Ed.: V.V. Brzgul'.

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

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

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Chemical Industry (Cont.)

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VASIL'YEV, Ye.K.; SHVARTSBERG, M.S.; KOTLYAREVSKIY, I.L.

Roentgenometric constants of some aryl-substituted acetylene glycols and their transformation products. Izv.Sib.otd.AN SSSR no.2:111-113 '60. (MIRA 13:6)

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

KOTLYAREVSKIY, I.L.; FISHER, L.B.; DULOV, A.A.; SLINKIN, A.A.

Oxidative polycondensation of p-diethynylbenzene. Izv.AN SSSR Otd.khim.nauk no.5:950-951 My '60. (MIRA 13:6)

1. Institut khimii Vostochno-Sibirskogo filiala Sibirskogo otdeleniya Akademii nauk SSSR.

(Benzene)

VERESHCHAGIN, L.I.; KOTLYAREVSKIY, I.L.

Synthesis of pyridine bases via vinylacetylene. Report No.3: Catalytic synthesis of 2-methyl-6-tert.butylpyridine and 2-methyl-6-arylpyridines. Izv.AN SSSR Otd.khim.nauk no.8:1440-1444 Ag '60.
(MIRA 15:5)

1. Institut khimii Vostochno-Sibirskogo filiala AN SSSR.
(Pyridine bases) (Butenyne)

S/062/60/000/009/012/021
B023/B064

AUTHORS: Kotlyarevskiy, I. L. and Vereshchagin, L. I.

TITLE: Synthesis of Pyridine Bases on the Basis of Vinyl Acetylene. Communication 4. Condensation of the Secondary Vinyl Ethinyl Carbinols With Ammonia

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 9, pp. 1629-1631

TEXT: In the introduction the authors refer to a previous paper (Ref. 1) in which they found that tertiary vinyl ethinyl carbinols enter a catalytic interaction with ammonia under the formation of pyridine bases. The catalytic condensation of ammonia with two secondary vinyl acetylene alcohols: (I) methyl vinyl ethinyl carbinol and (II) ethyl vinyl ethinyl carbinol were studied to determine the limits of applicability of this reaction. In this connection it was found that these carbinols enter an interaction with ammonia on the catalysts $CdHPO_4/CaHPO_4$(20:80) and CdO/Al_2O_3 (30:70) at temperatures of 285-470°. Pyridine bases result. A

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Synthesis of Pyridine Bases on the Basis of Vinyl Acetylene. Communication 4. Condensation of the Secondary Vinyl Ethinyl Carbinols With Ammonia

S/062/60/000/009/012/021
B023/B064

mixture of 2- and 4-picoline and 2,4-lutidine (altogether 17.3%) forms from (I) with ammonia. 2-ethyl-3,5-dimethyl pyridine forms from (II) as the major base. Propionitrile was detected in the neutral part of the catalyzate. The formation of the latter can only be explained by the presence of propionaldehyde in the reaction mixture. The formation of aldehydes and nitriles from the latter is, in turn, explained by cleavage of the initial carbinols at a high temperature. In this connection the authors carried out a catalytic synthesis of the mentioned pyridine bases both from the mixtures of the aldehyde with vinyl acetylene and ammonia, and from the aldehydes with ammonia. In both cases, not only the respective nitriles are obtained, but also the same pyridine bases, but in a much higher yield than from carbinols. The yields of the pyridine bases obtained from the aldehydes and ammonia in the presence of vinyl acetylene do not differ from those obtained in the absence of vinyl acetylene. Thus, it may be concluded that vinyl acetylene does not take part in this reaction. The pyridine bases form according to Chichibabin's scheme. There are 3 references: 1 Soviet, 1 US, and 1 CSR

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VERESHCHAGIN, L.I.; VASIL'YEV, Ye.K.; KOTLYAREVSKIY, I.L.

Synthesis and some physical characteristics of bicyclic pyridine bases. Report No.3. Izv.Sib.otd.AN SSSR no.12:83-87 '60.
(MIRA 14:2)

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

KHAZANOV, Ye.I.; KOTLYAREVSKIY, I.L.; KOPYLOVA, V.P.; SHLAPKO, A.Ya.;
BUTORIN, K.K.

Experimental extraction of calcium carbide by fusion from limestones of the Ust-Anga deposit of the Irkutsk Province. Trudy Vost.-Sib. fil. AN SSSR no.25:138-143 '60. (MIRA 13:9)

(Calcium carbide)

S/074/60/029/012/001/004
B013/B078

AUTHORS: Shvartsberg, M. S., Kotlyarevskiy, I. L.

TITLE: Methods of Synthesis of Polyphenyl Hydrocarbons

PERIODICAL: Uspekhi khimii, 1960, Vol. 29, No. 12, pp. 1439 - 1473

TEXT: This is a review of papers on the syntheses of polyphenyl hydrocarbons. The preparation of hydrocarbons with a ramified polycyclic chain is not covered here. About individual questions of the synthesis of polyphenyls there are several reviews in technical literature (Refs.2-5). The existing methods of preparation of polyphenyl hydrocarbons may be divided into five groups. The first group includes methods of lengthening the polyphenyl chain. To this group belong: 1) pyrolysis (Refs.6-59); 2) preparation of polyphenyls from aromatic amines: a) reaction according to Gomberg (Refs.60-68); b) synthesis over nitroso acyl amines (Refs. 1, 69-81); c) direct synthesis from diazo salts (Refs.82-91); d) other methods (Refs.92-100). 3) Arylation with peroxides of aromatic acids (Table, Refs.62,74, 76, 77, 92, 101-117). 4) Preparation of polyphenyls out of aryl halides: a) reduction on the palladium catalyst (Refs. 118-120);

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Methods of Synthesis of Polyphenyl Hydrocarbons

S/074/60/029/012/001/004
B013/B078

and V. I. Sidel'nikova are mentioned. There are 1 table and 329 references: 63 Soviet.

ASSOCIATION: Institut khimii Vostochno-Sibirskogo filiala Sibirskogo otdeleniya AN SSSR (Institute of Chemistry of the East Siberian Branch of the Siberian Department of the AS USSR)

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Card 3/3

5.3300

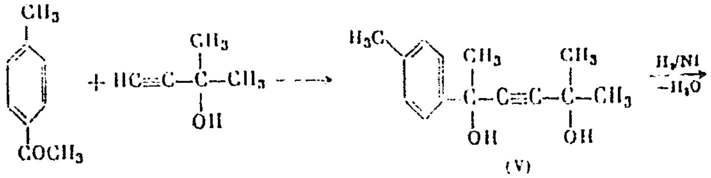
77000
SOV/79-30-2-17/78

AUTHORS: Shvartsberg, M. S., Bardamova, M. I., Kotlyarevskiy, I. L.

TITLE: Unsaturated Hydrocarbons. X. Synthesis of 4,4'-Dimethylbiphenyl and 2-Phenylnaphthalene

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 436-440 (USSR)

ABSTRACT: The authors synthesized 4,4'-dimethylbiphenyl (I) and 2-phenylnaphthalene (II) from 2,2,5-trimethyl-5(4'-methylphenyl)tetrahydrofuran (III) and 2-methyl-2-phenyl-5-spirocyclohexyltetrahydrofuran (IV) by the following scheme which also gives the synthetic routes for the intermediates.



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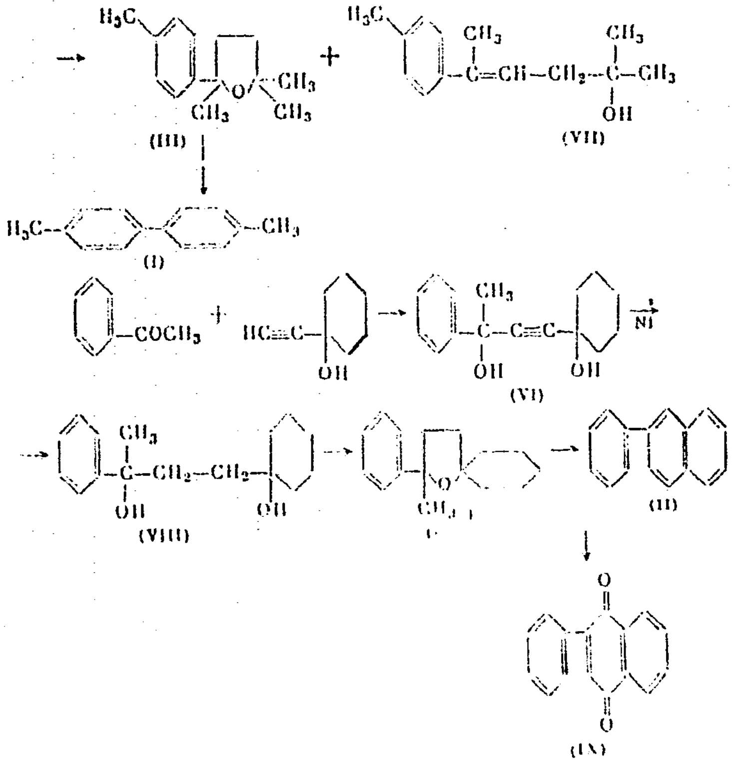
Unsaturated Hydrocarbons. X. 77806 SOV/79-30-2-17/78



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Unsaturated Hydrocarbons. X

77866
SOV/79-30-2-17/78

1-(1'-hydroxycyclohexyl)-3-phenylbutyne-1-ol-3 (VI), mp 124-124.5°; hydration product of (VI), the saturated glycol (VIII), mp 127-127.5°; 2-methyl-2--phenyl-5-spirocyclohexyltetrahydrofuran (IV), bp 122-123° (1.5 mm), d_4^{20} 1.0096, n_D^{20} 1.5255; 2-phenylnaphthaquinone-1,4 (IX), which is an oxidation (with chromic anhydride in acetic acid) product of (II), mp 109-110.5°. There are 2 figures; and 8 references, 3 Soviet, 1 German, 1 Swiss, 1 U.K., 2 U.S. The 3 U.K. and U.S. references are: R. A. Friedel, M. Orchin, Ultraviolet Spectra of Aromatic Compounds, N. Y. (1951); M. C. Kloetzel, J. Am. Chem. Soc., 62, 3405 (1940); D. H. Hey, S. E. Lawton, J. Chem. Soc., 374 (1940).

ASSOCIATION: Institute of Chemistry, East-Siberian Branch of the Academy of Sciences, USSR (Institut khimii Vostochno-Sibirskogo filiala otdeleniya Akademii nauk SSSR)

SUBMITTED: February 5, 1959

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5.3300

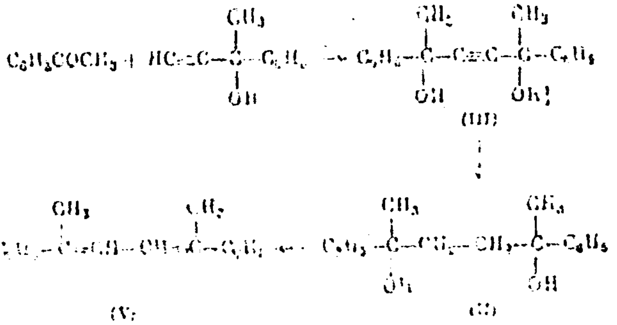
77867
SOV/79-30-2-18/78

AUTHORS: Kotlyarevskiy, I. L., Shvartsberg, M. S., Trotsenko, Z. P.

TITLE: Unsaturated Hydrocarbons. XI. Synthesis of p-Terphenyl

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 440-443 (USSR)

ABSTRACT: para-Terphenyl (I) was synthesized by aromatization of dehydration products of 2,5-biphenylhexanediol-2,5 (II). The following scheme illustrates the synthesis route:



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Unsaturated Hydrocarbons. XI

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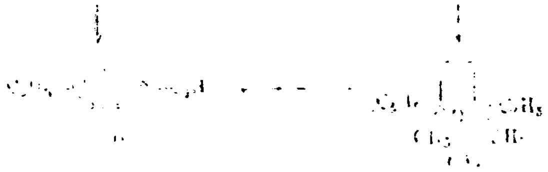

The 2,5-biphenylhexyne-3-diol-2,5 (III) is obtained as a mixture of two isomers (with mp 162-163° (IIIa) and 122-123° (IIIb)), which, upon hydrogenation (over skeletal Ni) give corresponding diols (IIa and IIb). Dehydration of both forms gives identical results, a mixture of V and IV. Aromatization of the latter products were conducted in the flow system described earlier (Kotlyarevskiy, I. L., Shvartsberg, M. S., Zhur. obshchey khim.. 29, 2650 (1959)) over $MgO(Cr_2O_3)Al_2O_3$ (2:18:80) at 530°, feeding the reactants

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Unsaturated Hydrocarbons. XI

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SOV/79-30-2-18/78

(20% solution of the starting compound in benzene) at the rate of 0.7 kg/l catalyst · hr. After distilling benzene, the precipitate was washed with boiling alcohol, mp 208.5-209° (from alcohol). There are 11 references, 7 Soviet, 1 German, 1 French, 2 U.S. The 2 U.S. references are: F. E. Ray, E. Sawicki, O. H. Borum, J. Am. Chem. Soc., 74, 1247 (1952); R. A. Friedel, M. Orchin, Ultraviolet Spectra of Aromatic Compounds, N. Y. (1951).

ASSOCIATION: Institute of Chemistry, East-Siberian Branch of the Academy of Sciences, USSR (Institut khimii Vostochno-Sibirskogo filiala Akademii nauk SSSR)

SUBMITTED: April 23, 1959

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S/079/60/030/009/004/015
B001/B064

AUTHORS: Kotlyarevskiy, I. L., Shvartsberg, M. S.

TITLE: Unsaturated Hydrocarbons. XII. Synthesis of 4-Methyl-p-terphenyl and 4,4"-Dimethyl-p-terphenyl

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 9, pp. 2912-2916

TEXT: The synthesis of the substituted terphenyls by dehydrogenation and cyclization (Ref. 1) previously carried out by the authors could proceed by two methods, i.e., by aromatization of the glycols and their dehydration products containing either one diphenyl substituent or two phenyl substituents. 4-methyl-p-terphenyl (I) was synthesized by the first method, 4,4"-dimethyl-p-terphenyl (II) by the second. Condensation of p-acetyl diphenyl with dimethyl ethinyl carbinol according to Iotsich gave rise to 2-methyl-5-p-diphenylyl hexine-3-diol-2,5 (III), which, by hydrogenation in methanol with a skeleton nickel catalyst passes over into the respective hexane compound (IV). The latter is smoothly converted into 2,2,5-trimethyl-5-p-diphenylyl tetrahydrofuran (V) by the action

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of HCl in benzene. The aromatization of glycol (IV) and tetrahydrofuran (V) (Refs. 1, 2) results in 4-methyl-p-terphenyl (I) in a yield of 50%. 2,5-di-p-tolyl hexine-3-diol-2,5 (VI) was obtained according to Favorskiy from acetylene and p-methyl acetophenone (Ref. 3). Glycol (VI) was hydrogenated to the hexane compound without separation of the isomers, and furthermore passed over into the mixture of 2,5-di-p-tolyl hexadiene-2,4 (IX) and 2,5-dimethyl-2,5-di-p-tolyltetrahydrofuran (VIII) by dehydration. The structure of the diene (IX) was confirmed by ozonization under the formation of methyl acetophenone. The hydrogenation of glycol (VI) proceeds slowly in the last stage and results in the mixture of saturated glycol (VII) and ethylene glycol after absorption of 70-90% of computed hydrogen. In this case also 2,5-dimethyl-2,5-di-p-tolyl-Δ^3-dihydrofuran (X) was separated in dehydration apart from the diene (IX) and the tetrahydrofuran derivatives (VIII). The glycol (VII) and its products of dehydration (VIII) and (IX) were aromatized to the compound (II) (yield: 30-35%) with the catalyst $MgO/C_2O_3/Al_2O_3$. Figs. 1 and 2 show the ultraviolet spectra of the compounds mentioned. There are 2 figures and 7 references: 4 Soviet and 3 US.

Unsaturated Hydrocarbons. XII. Synthesis of 4-Methyl-p-terphenyl and 4,4"-Dimethyl-p-terphenyl

S/079/60/030/009/004/015
B001/B064

ASSOCIATION: Institut khimii Vostochno-Sibirskogo filiala Sibirskogo otdeleniya Akademii nauk SSSR (Chemical Institute of the East Siberian Branch of the Siberian Department of the Academy of Sciences USSR)

SUBMITTED: June 11, 1959

Card 3/3

KOTLYAREVSKIY, L.I.; NEGOVSKIY, V.A.; ITAL'YANTSEVA, T.Ya.; LYUBIMKINA, K.N.

Some mechanisms of the activity of the higher sections of the central nervous system in dogs after heavy exsanguination. Trudy Inst. vys. nerv. deiat. Ser. patofiziol. no.9:73-82 '61. (MIRA 15:4)
(RESUSCITATION) (CONDITIONED RESPONSE)

KOTLYAREVSKIY, L.I.; LYUBIMKINA, K.N.

Changes in the conditioned reflex activity of dogs caused by chronic whole-body irradiation with the maximum dose of X rays. Trudy Inst. vys. nerv. deiat. Ser. patofiziol. no.9:192-197 '61. (MIRA 15:4)

(X RAYS--PHYSIOLOGICAL EFFECT) (CONDITIONED RESPONSE)

KOTLYAREVSKIY, I.L.; YERMOLOVA, T.I.

Synthesis of acetates of acetylenic γ-ketols. Izv. Sib. otd. AN SSSR no.10:92-96 '61. (MIRA 14:12)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR, Irkutsk.

(Ketols)

KOTLYAREVSKIY, I. L., Doc Chem Sci -- "New methods of synthesis ~~synthetic methods~~ and certain new ~~recent~~ conversions of acetylene alcohols." Irkutsk, 1961. (Acad Sci USSR. Sib Dept, Inst of Chem)

(KL, 8-61, 230)

FISHER, L.B. ; TERPUGOVA, M.P.; KOTLYAREVSKIY, I.L.

Dehydrogenation of disubstituted butanes. Dehydrogenation of 2,3-dimethylbutane and 2,3-dimethylbutenes in the presence of diluents. Izv.Sib.otd.AN SSSR no.2:57-60 '61. (MIRA 14:3)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR, Irkutsk.

(Butane) (Butene) (Dehydrogenation)

KOTLYAREVSKIY, I.L.; VASIL'YEVA, Ye.D.

Pyridine bases from cinylacetylene and its substitutes.
Report No.7: Synthesis of pyridine bases by the condensation
of 2-methyl-1-butene-3-yne with detones and ammonia. Izv.AN.
SSSR.Otd.khim.nauk no.10:1834-1840 O '61. (MIRA 14:10)

1. Institut khimii Vostochno-Sibirskogo filiala Sibirskogo
otdeleniya AN SSSR.
(Pyridine) (Butenyne)

25278
S/062/61/000/010/015/018
B106/B101

15-8063

AUTHORS: Kotlyarevskiy, I. L., Fisher, L. B., and Domnina, Ye. S.

TITLE: Oxidative polycondensation of diacetylene compounds

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1961, 1905 - 1907

TEXT: In a previous paper (Ref. 1: I. L. Kotlyarevskiy, L. B. Fisher, A. A. Dulov, A. A. Slinki, Izv. AN SSSR. Otd khim. n 1960, 950) the example of p-diethynyl benzene (I) showed that oligomers with conjugate aromatic and acetylene bonds can be obtained by oxidative condensation to linear diacetylene compounds. After this paper, another one describing a similar synthesis was published (Ref. 2: see below). The physical properties of the poly-p-diethynyl benzene thus synthesized are similar to those of semiconductors and ferromagnetics. In the present paper, the examination of this reaction is continued. The corresponding polymers for which, in analogy to II, the structures VII, VIII, IX, and X are suggested, were obtained by oxidative polycondensation of 1,4-diethynyl-1,4-dihydroxy-cyclohexane (III), 9,10-diethynyl-9,10-dihydroxy-9,10-dihydro

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23278
S/062/61/000/010/015/018
B106/B101

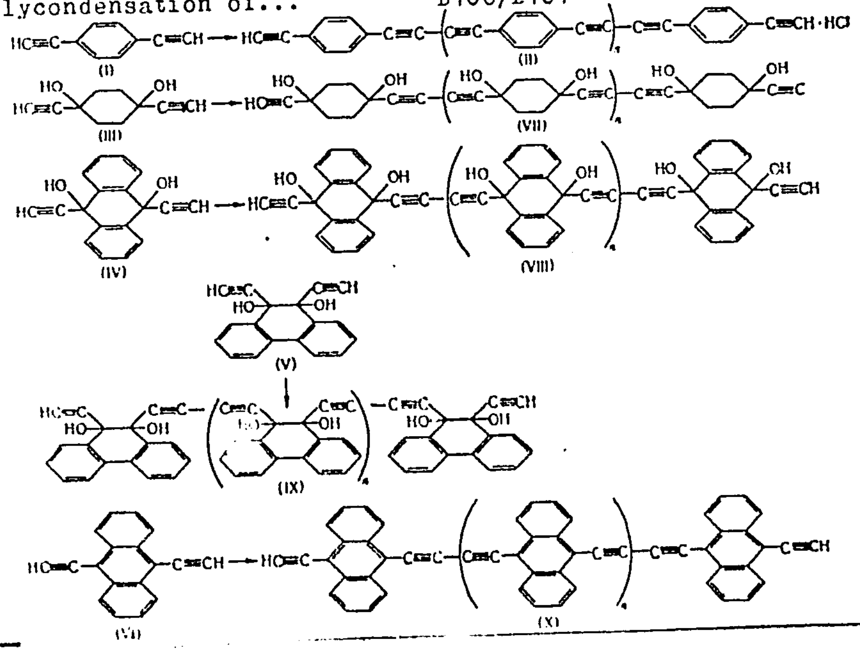
Oxidative polycondensation of...

anthracene (IV), 9,10-diethynyl-9,10-dihydroxy-9,10-dihydro phenanthrene (V), and 9,10-diethynyl anthracene (VI).

Card 2/6

23278
S/062/61/000/010/015/018
B106/B101

Oxidative polycondensation of...



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2-276

Oxidative polycondensation of... S/062/61/000/010/015/018
B106/B101

The initial p-diethynyl benzene (I) was obtained by two methods: (1) from the dehydrogenation products of p-diethyl benzene (Ref. 4: A. A. Balandin, N. I. Shuykin, G. M. Marukyan, I. I. Brusov, R. G. Seymovich, G. K. Lavrovskaya, V. K. Mikhaylovskiy, Zh. prikl. khimii, 32, No. 11; 2566, 1959), which were brominated in carbon tetrachloride at -12 - -15°C. The resulting tetrabromide was filtered off, washed with carbon tetrachloride, and recrystallized from chloroform (melting point: 156 - 157°C). Hydrogen bromide was then split off from the above tetrabromide by a method of R. Deluchat (Ref. 7: Ann. chimie 11, 1, 181 (1934)), and p-diethynyl benzene (melting point: 95°C) was thus obtained. 2) From p-diacetyl benzene by catalytic hydrogenation to 1,4-di(-1-hydroxy-ethyl)-benzene, by dehydration to p-divinyl benzene, and by bromination and further treatment of the latter as described under 1). The monomers III - V were obtained by condensation of acetylene and diketones in liquid ammonia (Ref. 5: W. Ried, H. J. Schmidt, Chem. Ber. 90, 2499 (1957)). Compound VI was obtained by aromatization of IV (Ref. 6: W. Ried, H. J. Schmidt, A. Urschel, Chem. Ber. 91, 2472 (1958)). Cuprous chloride was used as a catalyst for polycondensation, and aqueous dioxane, aqueous alcohol, and pyridine (Ref. 2: see below) were used as solvents. The

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VERESHCHAGIN, L.I.; KOTLYAREVSKIY, I.L.

Progress in the synthesis of alkylpyridines. Usp.khim. 30 no.8:
982-1012 Ag '61. (MIRA 14:9)

1. Laboratoriya monomerov Vostochno-Sibirskogo filiala
Sibirskogo otdeleniya AN SSSR.
(Pyridine)

SHVARTSBERG, M.S.; VASIL'YEV, Ye. K.; KOTLYAREVSKIY, I.L.

Unsaturated hydrocarbons. Part 13: Course and limits of applicability of the dehydrocyclization reaction in the synthesis of polyphenyls. Zhur. ob. khim. 31 no.4:1278-1284 Ap '61. (MIRA 14:4)

1. Institut khimii Vostochnosibirskogo filiala Sibirskogo otdeleniya Akademii nauk SSSR.

(Aromatization) (Polyphenyls)

ZANINA, A.S.; KOTLYAREVSKIY, I.L.

Synthesis of pseudocumene and prehnitene from acetylene derivatives. Trudy Vost.-Sib.fil.AN SSSR no.38:142-148 '61. (MIRA 15:4)
(Benzene) (Acetylene)

KOTLYAREVSKIY, I.L.; VOLKOV, A.N.; VASILEVSKIY, S.F.

High-temperature alkylation of isobutance and propane by ethylene.
Trudy Vost.-Sib.fil.AN SSSR no.38:149-151 '61. (MIRA 15:4)
(Propane) (Ethylene)

5.1190
5.3300

27903
S/079/61/031/010/003/010
D227/D302

AUTHORS: Kotlyarevskiy, I.L., and Zanina, A.S.

TITLE: Unsaturated hydrocarbons. XIV. Synthesizing polycyclic hydrocarbons by dehydro-cyclization of acetylene derivatives

PERIODICAL: Zhurnal obshchey khimii v. 31, no. 10, 1961, 3206-3214

TEXT: The present work is a continuation of earlier studies, in which the authors showed the possibility of synthesizing polycyclic, aromatic hydrocarbons by dehydrocyclization of acetylenic glycols and their products of hydrogenation and dehydration. The main purpose of this work was to synthesize tri- and tetracyclic condensed aromatic compounds containing five membered rings, especially 1,2 - cyclopenhenonaphthalene (I), 1,2 - cyclopenheno - $\Delta^{2'3'}$ - naphthalene (II), 1,2 - cyclopentanophenanthrene (III), 1,2 - cyclopentano - $\Delta^{1'2'}$ - (or $\Delta^{2'3'}$) - phenanthrene (IV), and chrysene (V). 1,2 - cyclopenpentanonaphthalene (I) and 1,2 -

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cyclopentano-naphthalene were prepared from ethinylcyclohexonal and cyclopentanone by the Iotsich condensation followed by dehydration of product IV, as shown by the scheme in the presence of dilute sulphuric acid, and dehydrocyclization of compound VII on an aluminum-chromium catalyst promoted with magnesium oxide. Acetylenic glycol (VI) was perhydrogenated to 1-(1'-hydroxy cyclohexyl)-2-(1'-hydroxycyclopentyl)- ethane (VIII) which on dehydration with HCl in benzene gave 2-spiro-cyclohexyl-5-spiro-cyclopentyltetra-hydrofuran (IX). The latter on dehydrocyclization gave a mixture of (I) and (II), whose composition was determined by analysis, molecular weight and infrared spectrography. The synthesis of cyclopentanophenanthrene (III) and cyclopentano-phenanthrene (IV) is of great interest as both these compounds have a steroidal hormone structure. The method of preparation is shown by Scheme 2, the stages being similar to the previous synthesis. Chrysene (V) was obtained in a similar manner starting from α- tetralone and 1 - ethinyl-cyclohexanol - 1. Compounds similar to those synthesized in the present work have recently

Unsaturated hydrocarbons ...

27903
S/079/61/031/010/003/010
D227/D302

I and II m.pts. 110-110.5°C and 111.5-112.5°C respectively. Similarly, aromatization of VII under analogous conditions yielded compounds I and II. Synthesis of other compounds involved exactly the same procedure using the specified starting materials. There are 6 figures, 1 table and 11 references: 5 Soviet-bloc and 6 non-Soviet-bloc. The 4 most recent references to English-language publications read as follows: R.A. Friedel, M. Orchin. Ultraviolet spectra of aromatic compounds. Chapman-Hall, London 1951; C.F. Koelsch, R. A. Scheiderbauer, J. Am. Chem. Soc. 65, 2311 (1943); P.S. Pinkney, G. A. Nesty, R.H. Willey, C.S. Marvel, J. Am. Chem. Soc. 58, 972 (1936); Pinkney, Marvel, J. Am. Chem. Soc. 59, 669 (1937).

ASSOCIATION: Institut khimii vostochno-sibirskogo filiala Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemistry Eastern Siberian Branch, Siberian Division of the Academy of Sciences USSR)

SUBMITTED: October 4, 1960

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15.8063

33270
S/062/62/000/001/010/015
B117/B101

AUTHORS: Kotlyarevskiy, I. L., and Vereshchagin, L. I.

TITLE: Synthesis of pyridol polyacetylene

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 1, 1962, 162 - 164

TEXT: A new method of synthesizing polyacetylenes is suggested, in which the acetylene chain is extended by oxidative condensation of pyridyl acetylenes with dimethyl-ethinyl carbinol, and the alcohols obtained are separated into monopyridyl acetylenes and acetone by Favorskiy's reaction (A. Zakharova, Zh. obshch. khimii 11, 939 (1941)). 2-methyl-5-ethinyl pyridine was used as initial substance. Bipyridyl polyacetylenes were obtained by oxidative dimerization of monopyridyl acetylenes:

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Synthesis of pyridol polyacetylene

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S/062/62/000/001/010/015
B117/B101

butadiine-1,3 (II) (yield 88%, m. 192 - 192.5°C); 1,8-di-(2'-methyl pyridyl-5')-octatetraine-1,3,5,7 (III) (m. 175°C); 1-phenyl butadiine-1,3 (IV); 1,8-diphenyl octatetraine-1,3,5,7 (V) (m. 115 - 116°C). The condensation of 2-methyl-5-ethinyl pyridine with phenyl acetylene yielded 1-(2'-methyl pyridyl-5')-4-phenyl butadiine-1,3 (VI) (yield 37.4%, m. 121 - 122°C). A mixture of 1,4-di-(2'-methyl pyridyl-5')-butadiine-1,3 and 1-(2'-methyl pyridyl-5')-5-methyl hexadiine-1,3-ol-5 (VII) was obtained by condensation of 2-methyl-5-ethinyl pyridine with dimethyl-ethinyl carbinol. A quantitative yield of 1,4-di-(2'-methyl pyridyl-5') butane (m. 65 - 66°C) was obtained by hydrogenation of 1,4-di-(2'-methyl pyridyl-5')-butadiine-1,3. There are 9 references: 4 Soviet and 5 non-Soviet. The three references to English-language publications read as follows: J. Armitage, N. Entwistle, E. Jones, M. Whiting. J. Chem. Soc. 1954, 147 - 154; M. Nakagawa, Proc. Japan. Acad., 26, 43 - 47 (1950); Chem. Abstrs., 45, 8486 (1951); M. Nakagawa, Proc. Japan. Acad., 26, 38 - 42, (1950).

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33270
Synthesis of pyridol polyacetylene S/062/62/000/001/010/015
B117/B101

ASSOCIATION: Institut khimii Vostochno-Sibirskogo filiala Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemistry of the East Siberian Branch of the Siberian Department of the Academy of Sciences USSR)

SUBMITTED: July 21, 1961

15.8112

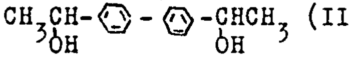
33273
S/062/62/000/001/014/015
B101/B110

AUTHORS: Kotlyarevskiy, I. L., Shvartsberg, M. S., and Kruglov, B. G.

TITLE: Synthesis and oxidative polycondensation of 4,4'-diethynyl biphenyl

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 1, 1962, 184 - 185

TEXT: By hydrogenation of p-diacetyl biphenyl on skeleton nickel catalyst at 50-60°C, the authors obtained in almost quantitative yield:



$CH_3\underset{OH}{CH}$-⌬-⌬-$\underset{OH}{CH}CH_3$ (II), melting point 161.5 - 162.5°C. This compound was dissolved in dioxane, and dehydrated by an Al_2O_3 catalyst at 330°C. The resultant, unpurified 4,4'-divinyl biphenyl, dissolved in CCl_4, was brominated: $CH_2BrCHBr$-⌬-⌬-$CHBrCH_2Br$. This tetrabromide had a melting point of 204-204.5°C (under decomposition), the yield referred to II was 14 - 16%. The tetrabromide was dehydrobrominated by KOH to 4,4'-diethinyl biphenyl (yield 50 - 55%), melting point 163 - 164°C. This compound may

X

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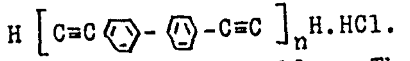
B101/B110

Synthesis and oxidative ...

be polycondensed in pyridine with CuCl as a catalyst, or in aqueous-alcoholic solution with CuCl-NH_4Cl. The following structure is assumed for the unsoluble, yellow or orange-colored oligomer:



The oligomer does not explode when heated, and is poorly inflammable. The infrared spectra taken at Academician I. V. Obreimov's laboratory in the INEOS showed the bands for 1,4-substituted aromatic rings and for acetylene hydrogen. The presence of carbonyl groups due to partial hydration of the triple bond of the end group is also possible. There are 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: A. S. Hay, J. Organ. Chem., 25, 1275 (1960).

ASSOCIATION: Institut nefte- i uglekhimicheskogo sinteza Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Petro- and Coal-chemical Synthesis of the Siberian Department of the Academy of Sciences USSR)

38374
S/190/62/004/002/002/021
B110/B101

15.8340

AUTHORS: Kotlyarevskiy, I. L., Fisher, L. B., Dulov, A. A., Slinkin, A. A., Rubinshteyn, A. M.

TITLE: Synthesis and some physical properties of poly-p-diethynyl benzene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 174 - 181

TEXT: Poly-p-diethinyl benzene with alternating ternary bonds and phenylene rings was synthesized from p-diethinyl benzene according to Yu. S. Zal'kind (Zh. obshch. khimii, 6, 530, 1936). The diethyl benzene mixture obtained during styrene production was dehydrogenated to divinyl benzene, brominated, dehydrobrominated, and polycondensed in water-alcohol or water-dioxane at 20 - 40°C in the presence of CuCl, NH_4Cl, and O_2 to orange-red, powdery oligomer (I) insoluble in water and organics:

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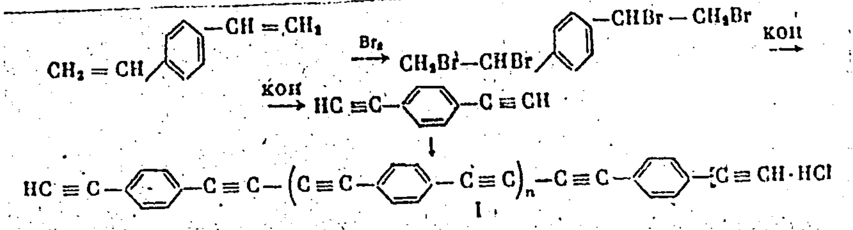
S/190/62/004/002/002/021
B110/B101

Synthesis and some physical...



I

n = 3—4

It explodes under rapid heating to 120 - 130°C in N_2 flow, but is no longer explosive in the form of pressed tablets up to 140°C in N_2 flow. Thermogravimetric and quantitative studies showed that the color change (to black) at 400°C was not due to decomposition but to intramolecular polymerization and structuration processes. The conductivity of tablets pressed at 5000 atm was examined with direct current at $5 \cdot 10^{-3}$ mm Hg. The tablets were heated in N_2 flow for 20 hr. The conductivity is described by: $\sigma = \sigma_0 \exp(-E/kT)$. Resistance and activation energy of conductivity decrease with increasing heating temperature (220 - 600°C) $\sigma \approx 10^{-2}$ $ohm^{-1} \cdot cm^{-1}$; E-0.1 ev at 600°C). Ultraviolet irradiation of a sample heated at 220°C raises the conductivity

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B110/B101

Synthesis and some physical...

reversibly by some orders. This effect decreases with increasing heating temperature (400°C) and disappears at 500 and 600°C completely. The sign of the thermo-emf and the reversible resistance decrease during oxygen adsorption confirm the hole character of the conductivity. The specific magnetic susceptibility of the initial oligomer determined between 20 and 160°C at $H = 3500 - 4500$ oersteds was $\chi = -0.4 \cdot 10^{-6}$, after pressing at 5000atm: $\chi = -0.2 \cdot 10^{-6}$. The maximum number of unpaired electrons exists on heating to 220°C, maximum χ value at 400°C, while ferromagnetic H dependence on χ was observed. The intensities of the epr signal as dependent on heating (2 hrs) in vacuo and N_2 (0.5% O_2) pass through a maximum at ~220°C. X-ray studies with an УРС-55(URS-55) device showed increasing crystal formation (favored by pressing) with increasing heating temperature. The electric and magnetic properties of slightly heated amorphous samples are determined by individual unpaired electrons and energetic barriers between the loosely bound, conjugated sections while ultraviolet irradiation increases the number of current carriers. At higher temperatures, the individual conjugated sections are combined to microcrystalline domains, and the number of electrons which have not yet entered the domain of strong interaction

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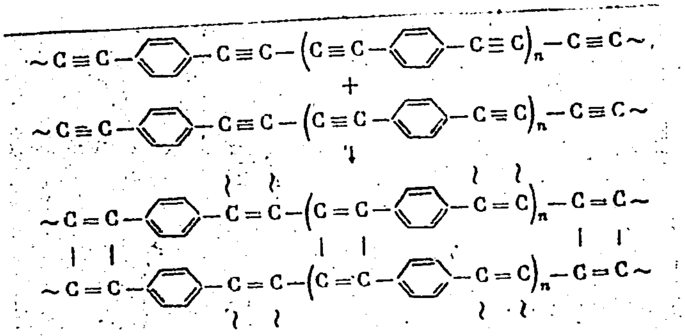
S/190/62/004/002/002/021
B110/B101

Synthesis and some physical...

decreases. At a certain stage, further crystal growth gives rise to formation of diamagnetic graphite structures. At 400, 500, 600°C, electric resistance and activation energy of conductivity decrease with increasing heating temperature due to the presence of strongly interacting electrons. Two types of structurally different polymers are likely to exist. The conversion of the orange-colored, explosive initial polymer at 200°C is likely to proceed according to:



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Synthesis and some physical...

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B110/B101

At higher temperatures, domains are formed with ferromagnetic electron interaction due to cross linking which are superposed by diamagnetic interaction on further crystallization. Tal'roze is mentioned. There are 4 figures, 4 tables, and 14 references: 11 Soviet and 3 non-Soviet. The two references to English-language publications read as follows: A. S. Hay, J. Org. Chem., 25, 1275, 1960; D. D. Eley et al., Disc. Faraday Soc., 28, 55, 1959.

X

ASSOCIATION: Institut khimii Vostochno-sibirskogo filiala AN SSSR (Institute of Chemistry of the East Siberian Branch AS USSR). Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy AS USSR)

SUBMITTED: January 30, 1961

Card 5/5

SAMOYLOV, S.M.; ANDRIYEVSKIY, V.N.; KOTLYAREVSKIY, I.L.

Separate determination of small amounts of ethylene oxide, formaldehyde, and acetaldehyde in mixed aqueous solutions. Izv. AN SSSR Otd.khim.nauk no.2:201-208 F '62. (MIRA 15:2)

1. Institut nefte- i uglekhimicheskogo sinteza AN SSSR.
(Ethylene oxide)
(Acetaldehyde)
(Formaldehyde)

KOTLYAREVSKIY, I.L.

S/186/62/004/003/007/022
E071/E433

AUTHORS: Nikolayev, A.V., Torgov, V.G., Roman, V.K., Mikhaylov, V.A., Kotlyarevskiy, I.L.

TITLE: The synthesis and investigation of compounds of uranyl salts with pyridine oxide derivatives

PERIODICAL: Radiokhimiya, v.4, no.3, 1962, 296-304

TEXT: The authors studied the interaction of pyridine oxide derivatives (pyridine-N-oxide); γ-nitropyridine oxide; α-picoline-N-oxide; 2,6-lutidine-N-oxide; 2,3,6-trimethylpyridine-N-oxide; 2,3,5,6-tetramethylpyridine-N-oxide and 2-methyl-6-phenylpyridine-N-oxide) with uranyl salts (nitrate, sulphate and chloride). The synthesis of compounds of uranyl salts with pyridine oxides was done by mixing 10 to 15% alcoholic solutions of a pyridine oxide with alcoholic solutions of uranyl salts in a ratio of uranyl salt : pyridine oxide = 1:3 (in the case of γ-nitropyridine oxide an aqueous solution was used). Altogether 11 complex compounds of uranyl salts with pyridine oxides were obtained and some of their properties investigated. The composition of the compounds was: $UO_2(NO_3)_2 \cdot 2PyOx$;

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S/186/62/004/003/007/022
E071/E433

The synthesis and ...

$UO_2(NO_3)_2 \cdot 3PyOx$ (synthesized in aqueous medium); $UO_2SO_4 \cdot 2PyOx$; $UO_2Cl_2 \cdot 2PyOx$. Differential thermal analysis of the compounds indicated that the first effect is an endothermic one, it is not associated with any visual changes in the compounds (with the exception of $UO_2(NO_3)_2 \cdot 2C_6H_7NO$ which melts at 160°C and $UO_2SO_4 \cdot 2C_5H_5NO$ which changes colour at 200°C) and is assumed as being due to the splitting of one or two molecules of pyridine oxide which can be accompanied by melting. The temperature of this effect can be taken as a measure of the strength of the complex. A steady decrease of this temperature in the series: $UO_2(NO_3)_2 \cdot 2C_5H_5NO$ (220°C), $UO_2(NO_3)_2 \cdot 2C_6H_7NO$ (160°C), $UO_2(NO_3)_2 \cdot 2C_7H_9NO$ (120°C) indicate that the introduction of the methyl group in the α-position in respect of nitrogen leads to a decrease in the strength of the bond $UO_2^{2+} \ldots \bar{O} - \overset{+}{N}\langle\!\langle$

The compounds are well soluble in water and little soluble in organic solvents. Complexes with α-picoline oxide are somewhat better soluble in organic solvents. This is ascribed to lack of symmetry in the α-picoline molecule. It is thought that this

S/186/62/004/003/007/022
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The synthesis and ...

non-symmetrical hydrophobization of α-picoline molecule can be enhanced by the introduction of one or two long alkyl chains and thus produce complexes well soluble in organic solvents and insoluble in water. A decrease in the polarity of the N → O bond through the introduction of electrophylic substituents, e.g. halogens may have a similar effect. In this way compounds suitable as extracting agents could be obtained. This problem is being investigated. There are 4 figures and 7 tables.

SUBMITTED: April 11, 1961

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KOTLYAREVSKIY, I.L.; VERESHCHAGIN, L.I.; YASHINA, O.G.;
VASIL'YEV, Ye.K.; FAYERSHTEYN, Yu.M.

Pyridylacetylenes. Report No.1: Synthesis of pyridylacetylene alcohols. Izv. Sib. otd. AN SSSR no.9:80-87 '62.
(MIRA 17:8)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

KOTLYAREVSKIY, I.L.; VERESHCHAGIN, L.I.; YASHINA, O.G.

Pyridylacetylenes. Report No. 2: Synthesis of pyridylacetylene alcohols by Favorskii's method. Izv. Sib. otd. AN SSSR no. 11: 148-150 '62. (MIRA 17:9)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR, Irkutsk.

Kotlyarevskiy, I. L

AID Nr. 980-14 31 May

POLYMER WITH TETRAACETYLENE GROUPS IN THE BACKBONE (USSR)

Shvartsberg, M. S., I. L. Kotlyarevskiy, and V. N. Andriyevskiy. IN: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 3, Mar 1963, 575-576. S/062/63/000/003/018/018

A highly unsaturated polymer (I) whose conjugated chain consists of alternating aromatic and tetraacetylene groups was prepared for the first time at the Institute of Chemical Kinetics and Combustion, Siberian Department of

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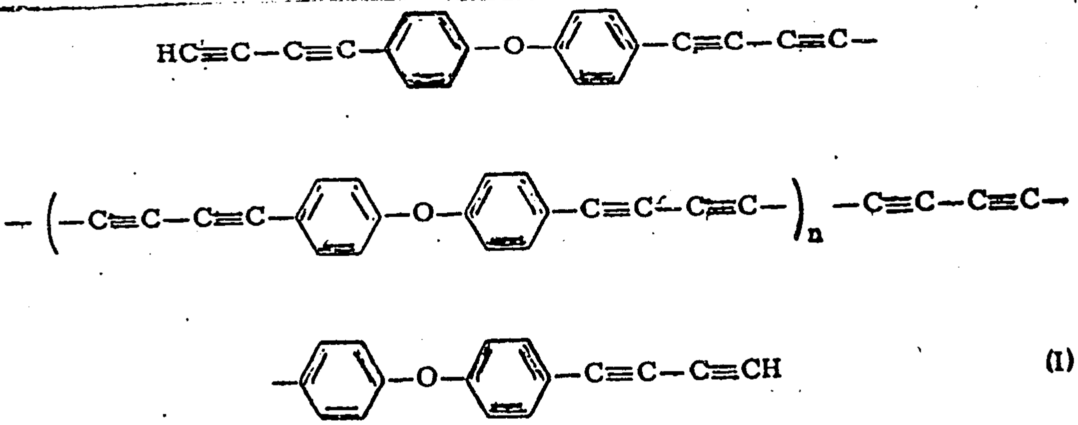
AID Nr. 980-14 31 May

POLYMER WITH TETRAACETYLENE GROUPS [Cont'd] S/062/63/000/003/018/018

the Academy of Sciences USSR. The polymer of 4-butadiynylphenyl ether (II) had the following probable structure:



(I)

Monomer II, which was synthesized in a 20% yield from 4-acetoacetylphenyl ether, is stable only in dilute solutions, discolors in air, and decomposes at

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AID Nr. 980-14 31 May

POLYMER WITH TETRAACETYLENE GROUPS (Cont'd) S/062/63/000/003/018/018

about 85°C. The IR spectrum of II contains a 2227 cm^{-1} $C\equiv C$, a 3338 cm^{-1} $C\equiv CH$, and a 1247 cm^{-1} ether band. Polymer I was prepared by polycondensation of II in a pyridine-benzene solution in the presence of CuCl in an O_2 atmosphere. Polymer I is a dark-violet powder insoluble in organic solvents, and explodes on heating. The IR spectrum of I contains a 2208 cm^{-1} $C\equiv C$ and a 1238 cm^{-1} ether band and an 830 cm^{-1} band due to the 1,4-substituents of the benzene ring. Polymer I has an EPR spectrum with an intense signal; the line width is 4.3 oe, and the number of unpaired spins is 8.25×10^{17}/g. [NI]

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SHVARTSBERG, M.S.; KOTLYAREVSKIY, I.L.; VERESHCHAGINA, A.A.

Highly unsaturated polymers. Report No.6: Poly-(1,3,5-triethinylbenzene). Izv. AN SSSR Ser.khim. no.10: 1836-1838 O '63. (MIRA 17:3)

1. Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya AN SSSR.

DULOV, A.A.; SLINKIN, A.A.; RUBINSHTEYN, A.M.; KOTLYAREVSKIY, I.L.

Electric conductivity, electron paramagnetic resonance spectra, and the structure of polyarylene-polyacetylenes. Izv. AN SSSR. Ser. khim. no.11:1910-1920 N '63. (MIRA 17:1)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR. i Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR.

KOTLYAREVSKIY, I.L.; SHVARTSBERG, M.S.; ANDRIYEVSKIY, V.N.; KRUGLOV, B.G.

Highly unsaturated polymers. Report No.7: Linear polynuclear diethinylarenes and their oxidative polycondensation. Izv. AN SSSR. Ser. khim. no.11:2032-2036 N '63. (MIRA 17:1)

1. Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya AN SSSR.

L 16113-65 EPA(s)-2/EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4/Pt-10 ESD(t)/
ESD(gs)/ASD(m)-3 RM

ACCESSION NR: AP4045835 S/0062/63/000/012/2197/2201

AUTHOR: Kotlyarevskiy, I. L.; Zanina, A. S.; Shergina, S. I.

B

TITLE: Highly unsaturated polymers. Report No. 8. Synthesis and polycondensation of 4, 4'-diethinyldiphenylmethane and 1, 2-bis-(4'-ethinylphenyl) ethane

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 12, 1963, 2197-2201

TOPIC TAGS: polymer, unsaturated polymer, triple C≡C bond, polycondensation, oxidizing polycondensation, infrared spectrum, diacetylene link, polymer backbone, acetylation, hydration, dehydration, bromination, dehydrobromination, chlorination

ABSTRACT: Within the frame of a prolonged study of magnetic and electrical properties and their relation to the particular polymer structure in such compounds synthesis of the two title compounds and their oligomers (I, II, III, and IV resp.) containing diacetylene links in the chain is described, as are the products themselves. Oxidizing polycondensation was conducted in the presence of CuCl in a pyridine solvent. The i. r. spectra of both mono and polymers showed the triple

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L 16113-65
ACCESSION NR: AP4045835 2

$C\equiv C$ bond band (doublet) and 1,4 substitution at the benzene ring. Neither polymer gave the EPR signal, both discolored around 300. Their electrophysical properties are being studied. A schematic picture of the synthesis is presented. Orig. art. has: 10 formulas.

ASSOCIATION: Institut khimicheskoy kinetiki i goreniya SO Akademii nauk SSSR (Institute of Chemical Kinetics and Combustion SO Akad. of Sciences SSSR)

SUBMITTED: 13Aug62 ENCL: 00

SUB CODE: GC, OC NO REF SOV: 007 OTHER: 003

Card 2/2

ZANINA, A.S.; SHERGINA, S.I.; KOTLYAREVSKIY, I.L.

Production of p-xylene during aromatization of furans. Zhur.
prikl.khim. 36 no.1:203-208 Ja '63. (MIRA 16:5)
(Xylene) (Furan) (Aromatization)

ACCESSION NR: AP4038525 S/0020/64/156/003/0616/0618

AUTHOR: Nikolayev, A. V. (Corresponding member); Torgov, V. G.; Mikhaylov, V. A.; Kotlyarevskiy, I. L.

TITLE: Uranyl nitrate extraction with pyridine-1-oxide derivatives

SOURCE: AN SSSR. Doklady*, v. 156, no. 3, 1964, 616-618

TOPIC TAGS: uranyl nitrate extraction, solvent extraction, alpha-alkylpyridine-1-oxide, extracting agent, extraction mechanism, extracting capability

ABSTRACT: The mechanism of solvent extraction of uranyl nitrate with α-alkylpyridine-1-oxides has been studied to discover an extracting agent for uranyl nitrate superior to those presently known, such as tributylphosphate (TBP), in respect to the solubility of their solvates in various organic solvents. The distribution isotherms of uranyl nitrate between the agneous and organic phases and direct synthesis indicated that the formation of the disolvate

ACCESSION NR: AP4038525

is the factor limiting uranyl nitrate concentration in the organic phase. An analogy was noted in the mechanism of extraction between α-alkylpyridine-1-oxides and neutral phosphoorganic compounds (TBP). On the basis of experimental equilibrium constants of the extraction process, the extracting capability of α-alkylpyridine-1-oxides was found to be 100 to 200 times higher than that of TBP. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Inorganic Chemistry, Siberian Department, Academy of Sciences, SSSR)

SUBMITTED: 10Feb64 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: GC NO REF SOV: 002 OTHER: 010

KOTLYAREVSKIY, I.L.

1 C

L 42979-65 EWT(m)/EWP(j)/T Pc-4 RM

ACCESSION NR: AP5009428 S/0289/64/000/003/0095/0104

19

18

AUTHOR: Torgov, V.G.; Nikolayev, A.V.; Mikhaylov, V.A.; Korolenok, L.N.; Stadnikova, L.G.; Kotlyarevskiy, I.L.

TITLE: Study of the extraction of uranyl nitrate by some derivatives of pyridine-N-oxide

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 3, 1964, 95-104

TOPIC TAGS: uranyl nitrate extraction, uranium refining, pyridine oxide derivative, peroxyacetic acid, distribution isotherm, tributyl phosphate

ABSTRACT: The article describes new compounds of uranyl nitrate with derivatives of pyridine-N-oxide (synthesized by oxidizing the corresponding pyridines with peroxyacetic acid), and discusses the mechanism of extraction of uranyl nitrate by some of them. With regular pyridine-N-oxides containing one N→0 group, uranyl nitrate forms compounds of the composition $UO_2(NO_3)_2 \cdot 2PyOx$; with molecules containing two N→0 groups, it forms the compounds $UO_2(NO_3)_2 \cdot PyOx$. Isotherms of the distribution of uranyl nitrate between water and solutions of pyridine-N-oxides in some organic solvents at 25 ± 0.05C are plotted. The graphs show that the extraction by α-alkylpyridine-N-oxides in the region of uranyl nitrate concentrations corresponding to the linear portions

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