Begin

REEL #223

Khorkhota, A.Ya.

BARBARICH, A.I., kandidat biologicheskikh nauk, laureat Stalinskoy premii, redaktor; KHORKHOTA, A.Ya., kandidat tekhnicheskikh nauk, redaktor; OVRUTSKAYA, I., redaktor; GARSHANOV, A., tekhnicheskiy redaktor

[Landscape gardening for cities and towns] Ozelenienie naselennykh mest. Pod obshchei red. A.I.Barbaricha i A.IA.Khorkhota, Kiev, 1952. 742 p. (MLRA 9:8)

1. Akademiya arkhitektury URSR, Kiyev, Institut gradostroitel'stva. (Landsape gardening)

S/079/61/031/009/001/012
D215/D306

AUTHORS: Petrov, K.A., Nifant'yev, E.Ye., and Khorkhoyanu, L.V.

TITLE: Peresterification of esters of dialkyl-phosphinious acids with glycerine derivatives

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 9, 1961, 2889 - 2894

TEXT: In the present work the authors studied peresterification of dialkyl- and diarylphosphinious acids with glycerine derivatives containing one free hydroxyl group for use in insect repellant compounds. The reaction of 1,2-diphenylideneglycerine with 1,2-isopropylideneglycerine was studied. The compounds were found to react readily with simpler esters, methylethyl-, dipropyl- and diphenylphosphinious acid. Glycerine derivatives with free secondary hydroxyls such as 1,3-benzylideneglycerine reacted less readily, but still gave good yields of the corresponding phosphinites. The phosphinites of the glycerine series provice novel compounds which

Card 1/6

are either liquids or crystalline solids having unpleasant odours. They oxidize easily in air but remain stable in an inert gas atmosphere; their chemical properties are similar to those of simpler dialkyl- and diarylphosphinious acids and in oxidizing medium and in the presence of sulphur convert to the corresponding phosphonates and thiophosphonates. The synthesized phosphinites react according to Arbuzov's reaction forming phosphine oxides and corresponding halogen derivatives. The peresterification and alkylation of phosphinites may be used in preparing some halogen derivatives from polyatomic alcohols if the former are difficult to produce. In the present work the authors also investigated this reaction in order to produce more complex halogen derivatives of the polyatomic alcohols. The propyl dipropylphosphinite and ethyl diphenylphosphinite necessary for this reaction were prepared by reacting Menshutkin acid chlorides with organomagnesium compounds at -70°C

$$ROPCl_2 + R'MgBr \longrightarrow ROPR'_2 \qquad (1)$$

$$R = C_2H_5,\ C_3H_7. \qquad R' = C_3H_7,\ C_6H_5. \qquad (1)$$

The first of the esters obtained has been unknown so far, and the second used to be prepared by more complex methods. The peresterification reaction was conducted by heating equimolecular quantities of the phosphinite and the glycerine derivative in a dry nitrogen stream with a small piece of sodium, distilling the required quantity of alcohol and finally vacuum distilling the residue. Time, temperature, yields and constants of the compounds obtained are given in tabulated form. In further experiments the propyl ester of dipropylphosphinious acid was oxidized with nitrogen oxides at -10°C until a permanent green coloration was obtained. Vacuum distillation of the solution yielded the propyl ester if dipropylphosphinic acid with high purity; b.pt. 103-104°C/1 mm Hg, n_D^{20} - 1.4418, d_4^{20} - 0.9543, and having an empirical formula

Peresterification of esters ... S/079/61/031/009/001/012
D215/D306

$C_9H_{21}O_2P$. The ester is colorless, odorless, insoluble in water, and soluble in ether, benzene, carbon tetrachloride and petroleum ether. Similarly oxidations of 1,2-isopropylidene glycerine ester and the 1,3-benzylideneglycerine ester of dipropylphosphinious acid were carried out to yield respectively esters of dipropylphosphinic acid, $C_{12}H_{25}O_4P$, b.pt. 143-144°/0.2 mm, n_D^{20} - 1.4530, d_4^{20} - 1.0376 and $C_{16}H_{21}O_4P$ b.pt. 117-118°/10^{-4} mm n_D^{20} - 1.5190. Both esters are insoluble in water and petroleum ether and soluble in alcohol, acetone, benzene, chloroform and carbon tetrachloride. Addition of sulphur to both propyl- and 1,2-isopropylideneglycerine esters of dipropylphosphinious acid was conducted by heating the esters with thoroughly dry sulphur at 140-142°C (exothermic reaction). The corresponding sulphur derivatives have b.pts. 81-82°C/0.5 mm and 141-140°C/1 mm respectively, unpleasant odors, and are both insoluble in water and soluble in

Card 4/6

common organic solvents. Propyl-, 1,2-isopropylideneglycerine- and the 1,3-benzylideneglycerine esters of dipropylphosphinious acid undergo the Arbuzov rearrangement with methyl iodide to yield respectively dipropylmethylphospine oxide, b.pt. 91-93°C/1 mm, m.pt. 39-39.5°C, the above oxide and 2,2-dimethyl-4-iodomethyldioxolen-1,3. b.pt. 81-83°C/9 mm. n_D^{20} - 1.5038, and the oxide as before and 2-phenyl-5-iodo-dioxan b.pt. 117-120°C/9 mm, n_D^{20} - 1.4983. The preparation of propyl ester of dipropylphosphinious acid and the ethyl ester of diphenylphosphinious acid was carried out by reacting the corresponding alkyl (propyl or ethyl) dichlorophosphite, pyridine, alcohol and propyl- or phenylmagnesium bromide respectively in ether at -65°C. Distillation of the reaction mixture yields in the first case the propyl ester of dipropylphosphinious acid b.pt. 70-71°C/7 mm, n_C^{20} - 1.4430, d_4^{20} - 0.8473 MR_{found} 54.64; $MR_{calculated}$ 54.94, which is a mobile liquid with unpleasant smell which igni-

Peresterification of esters ... S/079/61/031/009/001/012
D215/D306

tes in air and which is insoluble in water but soluble in common organic solvents; in the second case the ethyl ester of diphenylphosphinious acid b.pt. 127-128°C/1 mm, n_D^{20} - 1.5910. There are 1 table and 8 references: 4 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: U.S. Patent 2,588,407; E. Baer, H.L. Fischer, J. Am. Chem. Soc. 70, 609, 1948; C.N. Smith, D. Burnett, J. Econ. Entomol. 42, 434, 1949; T.H. Bevan, T. Malkin, D.B. Smith, J. Chem. Soc. 1955, 1383.

SUBMITTED: September 5, 1960

Card 6/6

PETROV, K.A.; NIFANT'YEV, E.Ye.; KHORKHOYANU, L.V.; TRUSHKOV, A.I.

Reesterification of esters of dialkyl- and diarylphosphinic acids.
Zhur.ob.khim. 31 no.9:3085-3090 S '61. (MIRA 14:9)
(Phosphinic acid) (Esterification)

15 8150
11.9700
11.2230

133382
S/190/62/004/002/013/021
B110/B101

AUTHORS: Petrov, K. A., Nifant'yev, E. Ye., Khorkhoyanu, L. V., Merkulova, M. I., Voblikov, V. F.

TITLE: Phosphorus-containing polymers. III. Application of the Arbuzov reaction for polymerizing ethylene alkyl phosphites

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 246-249

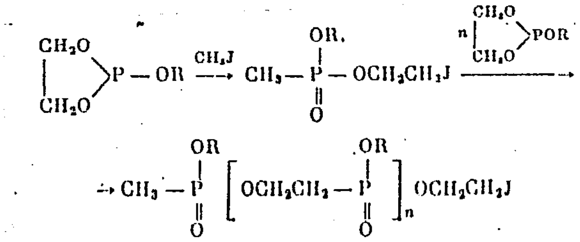
TEXT: The method by A. Ye. Arbuzov et al. (Izv. AN SSSR, Otd. khim. n., 1950, 357) can be used for producing polyphosphonates from cyclic phosphinites. In the present study, polyphosphonates were similarly synthesized on the basis of ethylene alkyl phosphites (I). Alcohol was added dropwise to 126.5 g of ethylene chlorophosphite, 300 ml of ether, and 152 g of triethylamine; the mixture was left standing, filtered off, heated for 30 min, and (I) was obtained by double distillation. Cyclic phosphites contain an alkoxy group besides the cyclic ester group. Polyphosphonates are formed under catalytic action of methyl iodide on ethylene alkyl phosphite during 3 hr heating at 130°C in Ar atmosphere:

Card 1/3

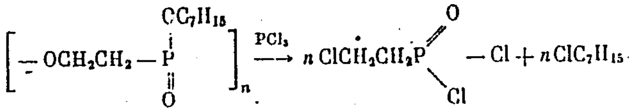
33 82

S/190/62/004/002/013/021
B110/B101

Phosphorus-containing polymers...



The structure of polyethylene heptyl phosphite was proven as follows:



$$\left[-OCH_2CH_2-\overset{CC_7H_{15}}{\underset{O}{\overset{|}{\underset{\|}{P}}}}\right]_n \xrightarrow{PCl_3} n\,ClCH_2CH_2P(=O)(Cl)-Cl + n\,ClC_7H_{15}$$

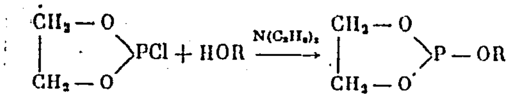
The degree of polymerization depends on the CH_3I amount, the reaction time and temperature. Optimum was: (1) small CH_3I amount; (2) ~20 - 30 hr, the reaction time depending on the molecular weight of the monomer,
Card 2/3

33382

Phosphorus-containing polymers...

S/190/62/004/002/013/021
B110/B101

the reaction temperature, and the CH_3I concentration; (3) ~160 - 200°C, depending on the molecular weight (hexyl and isooctyl compounds: 160 - 170°C; nonyl and decyl compounds: 200°C). The polymers are viscous, colorless, and odorless liquids soluble in organics. Some of them are highly thermostable (polydecyl ethylene phosphite endures ≤200°C for 20 - 30 hr). Utilization as plasticizer or admixture to lubricants is possible.



was also synthesized. There are 2 tables and 5 references: 4 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: A. K. Sherrill, J. Amer. Chem. Soc., 52, 1985, 1930.

SUBMITTED: February 9, 1961

Card 3/3

S/079/62/032/011/009/012
D204/D307

AUTHORS: Petrov, K.A., Nifant'yev, E.Ye., and Khorkhoyanu, L.V.

TITLE: Phosphorylation of glycerine and its derivatives by alcoholysis of the amides of dialkylphosphinous acids. A new method of directed replacement of a hydroxyl by a cyano group

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 11, 1962, 3720 - 3723

TEXT: Interactions of the diethylamide of dipropylphosphinous acid (I) with 1,2-iso-propylideneglycerine (II), 1,3-benzylideneglycerine (III) and glycerine were studied, in continuation of earlier work (ZhOKh, 31, 2889, 1961). I and II, and I and III interacted readily at 120-125°C to yield respectively the dipropylphosphinites of 1,2-iso-propylideneglycerine and 1,3-benzylideneglycerine (IV and V), in almost quantitative yields. Glycerine reacted analogously, at 135-140°C, in 60 % yield, to give the corresponding tris-dipropylphosphinite (VI). $C_3H_7OP(OC_3H_7)_2$ reacted readily with bu-

Card 1/2

S/079/62/032/011/009/012
Phosphorylation of glycerine and ... D204/D307

tyl thiocyanate, at 0°C, under an inert atmosphere; when the exothermic reaction was over the mixture was heated at 100-110°C for 1 hr., and was then distilled to give $BuSP(O)(Pr)_2$. Cyanodesoxy-1,2-*iso*-propylideneglycerine (VII) was prepared from IV and benzyl thiocyanate, in 45 % yield, by an analogous reaction. VII was converted into *iso*-propylidene-2-desoxytetrose by mixing it into $SnCl_2$/ether/HCl, stirring for 1 hr. at the b.p. of the ether evaporating the latter off, adding water and neutralizing the mixture and heating for 5 hrs. at 50°C. *Iso*-propylidene-3,4-desoxy-4-amino-erythrite was obtained by adding VII to ethereal $LiAlH_4$ evaporating the ether off, adding an equivalent amount of THF and heating for 96 hrs. on a water-bath.

SUBMITTED: December 14, 1961

Card 2/2

PETROV, K.A.; NIFANT'YEV, E.Ye.; KHORKHOYANU, L.V.

Phosphorylation of glycerol and its derivatives by alcoholysis of dialkyl phosphinic amides. New method of a directed substitution of a cyano group for hydroxyl. Zhur.ob.khim. 32 no.11:3720-3723 N '62. (MIRA 15:11)
(Glycerol) [redacted] (Phosphorylation)
(Phospinic amide)

S/190/63/005/003/009/024
B101/B186

AUTHORS: Petrov, K. A., Nifant'yev, E. Ye., Khorkhoyanu, L. V., Voblikov, V. F.

TITLE: Phosphorylated polysaccharides. II. Phosphorylation of cellulose by alcoholysis of amides of the acids of three-valent phosphorus

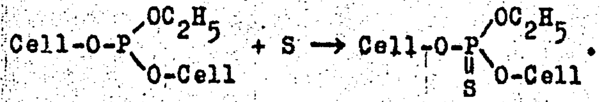
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 3, 1963, 348-352

TEXT: In a previous paper (Zh. obshch. khimii, 31, 2377, 1961) the authors described the reaction: Cell-CH + R_2N - P< → Cell-O-P< + R_2NH. In the present paper a study was made of this new method of phosphorylating cellulose by alcoholysis of phosphorous acid amides such a diethyl phosphorus acid diethylamide, ethylphosphorous acid tetraethylamide and phosphorous acid hexaethyltriamide in order to develop fireproof, antiseptic and insecticidal cellulose. Since the process of esterification of cellulose depends to a great extent on how the sample is prepared the following cellulose types were subjected to phosphorylation: viscose fiber, washed with methanol and dried; specially prepared cotton cellulose; cellulose

Card 1/3

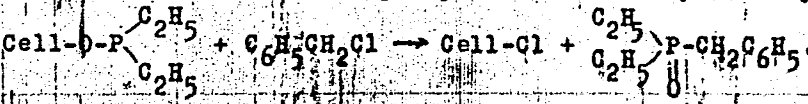
Phosphorylated polysaccharides... S/190/63/005/003/009/024
B101/B186

reprecipitated from triethylbenzylammonium hydroxide; and pyridine-enclosed cellulose. The degree of phosphorylation increased with increasing temperature (80 - 120°C). Celluloses with a phosphorus content up to 17.4%, γ = 300 were obtained. These optimum values were obtained with pyridine cellulose reprecipitated from triethylbenzylammonium hydroxide. With di- and triamides, insoluble compounds arose containing about 3 - 3.5% nitrogen so that cross linking is assumed. With monoamides, cellulose phosphinites were formed, soluble in methanol. The phosphinites with 5 - 7% P were extinguished again when the flame was removed, the esters with a still higher P content did not burn but only carbonized. The cellulose esters of the trivalent phosphorus acids are highly reactive. With dry oxygen quantitative oxidation to phosphates sets in. Sulfur adds with formation of the cellulose thiophosphates hitherto unknown:



$$\text{Cell-O-P}(\text{OC}_2\text{H}_5)(\text{O-Cell}) + \text{S} \longrightarrow \text{Cell-O-}\underset{\underset{\text{S}}{\|}}{\text{P}}(\text{OC}_2\text{H}_5)(\text{O-Cell})$$

. The cellulose phosphites react with sulphenechlorides. The cellulose-phosphinites are alkylated by alkyl halides;



$$\text{Cell-O-P}(\text{C}_2\text{H}_5)_2 + \text{C}_6\text{H}_5\text{CH}_2\text{Cl} \longrightarrow \text{Cell-Cl} + (\text{C}_2\text{H}_5)_2\underset{\underset{\text{O}}{\|}}{\text{P}}\text{-CH}_2\text{C}_6\text{H}_5$$

. Cellulose

Card 2/3

S/190/63/005/003/009/024
B101/B186

Phosphorylated polysaccharides...

halides arise which can be used as the initial substances for the synthesis of desoxy-, cyano-, amino-, and other cellulose derivatives. There are 3 tables.

SUBMITTED: August 8, 1961

Card 3/3

PETROV, K.A.; NIFANT'YEV, E.Ye.; KHORKHOYANU, L.V.; SHCHERBA, I.G.

Phosphites and phosphinites of triols and their derivatives. Zhur.ob. khim. 34 no.1:70-77 Ja '64. (MIRA 17:3)

PETROV, K.A.; NIFANT'YEV, E.Ye.; KHORKHOYANU, L.V.; GOL'TSOVA R.G.

Phosphorus-containing polymers. Part 8: Synthesis and some properties of polyarylene phosphites and phosphinites. Vysokom. soed. 5 no.12:1799-1804 D '63. (MIRA 17:1)

PETROV, K.A.; BAKSOVA, R.A.; KHORKHOYANU, L.V.; SINOGEYKINA, L.F.; SKUDINA, T.V.

Properties of phosphinic acid anhydrides. Part 1: Monoalkyl(aryl) phosphonates. Zhur. ob. khim. 35 no.4:723-728 Ap '65.
(MIRA 18:5)

PETROV, K.A.; BAKSOVA, R.A.; KHORKHOYANU, L.V.

Properties of phosphinic acid anhydrides. Part 3: Reactions of anhydrides of phosphinic acids with olefin oxides. Zhur. ob. khim. 35 no.4:732-737 Ap '65.

(MIRA 18:5)

L 16000-66 EWP(j)/EWT(m) RM/WW

ACC NR: AT6004037 SOURCE CODE: UR/0000/65/000/000/0310/0313

AUTHOR: Petrov, K A.; Baksova, R. A.; Khorkhoyanu, L V.; Rebus, I. F. 23

22

ORG: None

B+1

TITLE: Properties of phosphonic anhydrides. Part 2: Synthesis and properties of ethylenediphosphonic anhydride

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Problemy organicheskogo sinteza (Problems in organic synthesis). Moscow, Izd-vo Nauka, 1965, 310-313

TOPIC TAGS: organic phosphorus compound, alcohol, phenol

ABSTRACT: The article presents data on the synthesis of ethylenediphosphonic anhydride and on a study of its reaction with monohydric and dihydric alcohols and phenols. The anhydride was obtained in almost quantitative yield in two ways: (1) controlled hydrolysis of ethylenediphosphonyl tetrachloride in chloroform with prolonged heating

$$nCl_2(O)PCH_2CH_2P(O)Cl_2 + 2nH_2O \longrightarrow n(O_2PCH_2CH_2PO_2) + 4n\,HCl$$

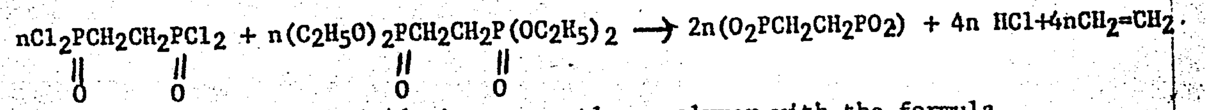
and (2) reaction of the tetrachloride with tetraethyl ethylenediphosphonate taken in equimolar amounts:

Card 1/2

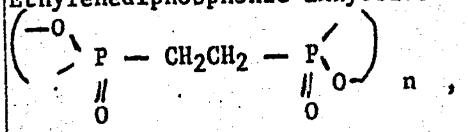
Z

L 16000-66

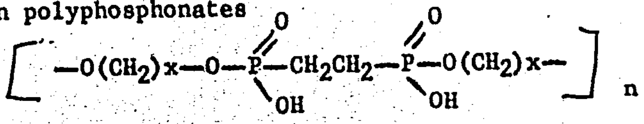
ACC NR: AT6004037



$$n\,Cl_2\underset{\overset{\|}{O}}{P}CH_2CH_2\underset{\overset{\|}{O}}{P}Cl_2 + n(C_2H_5O)_2\underset{\overset{\|}{O}}{P}CH_2CH_2\underset{\overset{\|}{O}}{P}(OC_2H_5)_2 \longrightarrow 2n(O_2PCH_2CH_2PO_2) + 4n\,HCl + 4n\,CH_2{=}CH_2$$



Ethylenediphosphonic anhydride is apparently a polymer with the formula , and consists of a vitreous hygroscopic mass insoluble in all organic solvents. It reacts readily with alcohols, glycols, and phenols. Acid esters of ethylenediphosphonic acid were obtained in good yields from reactions of the anhydride with ethyl, isooctyl, and sec-octyl alcohol and p-nitrophenol at 80—120C. Reaction of the anhydride with 1,3-propanediol and 1,6-hexanediol produced the heretofore unknown polyphosphonates



x = 3, 6

SUB CODE: 07 / SUBM DATE: 13Mar64 / ORIG REF: 003 / OTH REF: 002

Card 2/2

PONOMAREV, A.A.; SKVORTSOV, I.M.; KHORKIN, A.A.

1-Azabicycles. Part 1: Hydroxymethylation of compounds of the 1,2-dihydrodipyrrole series. Zhur. ob. khim. 33 no.8:2687-2690 Ag '63. (MIRA 16:11)

1. Saratovskiy gosudarstvennyy universitet imeni N.G. Chernyshevskogo.

ANDREYEV, German Sergeyevich; KHOR'KOV, A.I., red.; BARMIN, S.F., nauchn. red.; LEBEDEV-TSVETKOV, Yu.Yu., red.; MITROFANOV, I.A., red.; NECHAYEV, M.A., red.; RUSAKOVA, L.Ya., ved. red.; YASHCHURZHINSKAYA, A.B., tekhn.red.

[Firing-line method on main gas pipes] Vedenie ognevykh rabot na magistral'nom gazoprovode. Leningrad, Gostoptekhizdat, 1963. 110 p. (MIRA 16:10)
(Gas, Natural--Pipelines)

TIKHOMIROV, Yevgeniy Nikolayevich; KHOR'KOV, A.I., red.; BARMIN, S.F., red.; MITROFANOV, I.A., red.; NECHAYEV, M.A., red. OL'VOVSKIY, I.G., nauchn. red.; NEVEL'SHTEYN, V.I., ved. red.

[Assembly, adjustment, and operation of devices for the electrical protection of pipelines] Montazh, naladka i ekspluatatsiia ustroistv elektrozashchity magistral'nykh truboprovodov. Leningrad, Nedra, 1964. 126 p.
(MIRA 17:12)

KOTLYAR, Iosif Yakovlevich; KHOR'KOV, A.I., red.; MITROFANOV, I.A., nauchn. red.; RUSAKOVA, L.Ya., ved. red.; YASHCHURZHINSKAYA, A.B., tekhn. red.

[Operational organization of main gas pipelines] Organizatsii magistral'nykh gazoprovodov. Leningrad, Gostoptekhizdat, 1963. 109 p. (MIRA 17:1)
(Gas, Natural—Pipelines)

KUBLITSKIY, Mikhail Afanas'yevich; SHCHEL'KOV, A.I., red.; [illegible], S.F., red.; TIKHOMIROV, Ye.N., red.; MITROFANOV, I.A., red.; MIKHAYLOV, M.A., red.; SEGAL', Z.G., ved. red.

[Safety technique on main gas pipelines] Tekhnika bezopasnosti na magistral'nom gazoprovode. Leningrad, Izd-vo "Nedra," 1964. 106 p. (MIRA 17:8)

KHOR'KOV, I. A.

Electric Currents

Using an out of order electric motor as an induction regulator, Torf, prom, 29 no,3, 1952

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

ACC NR: AT7004001 SOURCE CODE: UR/0000/66/000/000/0224/0229

AUTHOR: Sipaylov, G. A.; Ivashin, V. V.; Khor'kov, K. A.

ORG: Scientific Research Institute of Nuclear Physics, Electronics, and Automation, Tomsk Polytechnic Institute (Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri TPI)

TITLE: Shock generator as an energy source and storage

SOURCE: Mezhvuzovskaya konferentsiya po elektronnym uskoritelyam. 5th, Tomsk, 1964. Elektronnyye uskoriteli (Electron accelerators); trudy konferentsii. Moscow, Atomizdat, 1966, 224-229

TOPIC TAGS: shock generator, electric generator, capacitor

ABSTRACT: Various methods of storing energy — in capacitors, inductors, electromagnetic machines, batteries — are briefly reviewed and their applicability is discussed (R. Curruthers, Proc. IEE, A-106, no. 2, 166, 1959). The authors' scheme of arcless circuit breaking of a shock electromagnetic generator (see

Card 1/2

ACC NR: AT7004001

Abstract AT6004000) is held capable of solving the main problem of using these generators when the stored energy is over 100 j. Design formulas that connect the required load energy with the Arnold machine constant, electromagnetic energy and kinetic energy per unit of rotor volume, and a utilization factor are deduced. Numerical examples show that impulses up to 20 Mj for a duration up to 0.04 sec are feasible. The shock electromagnetic generator operating jointly with a capacitor bank promises still higher usable energies. Orig. art. has: 8 formulas and 2 tables.

SUB CODE: 09 / SUBM DATE: 06Mar66 / ORIG REF: 006 / OTH REF: 002
4,

L 46778-66 EWT(1)

ACC NR: AR6014546 SOURCE CODE: UR/0196/65/000/011/I044/I044

30
B

AUTHOR: Sipaylov, G. A.; Khor'kov, K. A.

TITLE: Selecting stator winding of an impulse-current generator 25

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 11I303

REF SOURCE: Izv. Tomskogo politekhn. in-ta, v. 132, 1965, 181-189

TOPIC TAGS: impulse current generator, electric generator

ABSTRACT: The results are reported of a theoretical and experimental computer ("Minsk-1") study of the selection of stator winding and number of slots of a single-phase impulse-current generator intended for producing powerful magnetic fields. Calculations of several versions indicate that a single-phase, single layer winding that fills 2/3 or 5/6 of the total number of slots is optimal. In the latter case, the increased amount of copper is offset by an increased generator energy, with the same distortion of emf curve shape. The number of stator slots was determined from the estimated values of impulse power for different slot configurations in a stator $D^2 l = 7$ m^3 and $D_a = 2$ m. The optimal number of slots lies within 48--60. V. Lyashenko [Translation of abstract]

SUB CODE: 09

UDC: 621.313.17

Card 1/1

ACC NR: AR6026539 SOURCE CODE: UR/0372/66/000/004/G053/G053

AUTHOR: Loos, A. V.; Khor'kov, K. A.; Sipaylov, G. A.

TITLE: Mathematical model of combined operation of a surge generator and a capacitor battery

SOURCE: Ref. zh. Kibernetika, Abs. 4G373

REF SOURCE: Izv. Tomskogo politekhn. in-ta, no. 138, 1965, 124-133

TOPIC TAGS: electronic simulator, generator, capacitor, current density / MBN-1 electronic simulator

ABSTRACT: A mathematical model of a scheme of combined operation of a surge generator and a capacitor battery with inductive load is presented. The effect of individual circuit parameters on the pattern of the transient process was investigated with the aid of an MBN-1 electronic simulator, and the resulting findings are presented with respect to such parameters as: effect of the resistance of stator windings and load on the intensity of the load current; effect of the natural frequency of the circuit, original charge of the capacitor battery, generator load and disconnection of the generator and load on the magnitude of the energy transmitted to

UDC: 62-506:681.142:001

Card 1/2

ACC NR: AR6026539

the load. 4 illustrations, bibliography of 1 title. V. Zh. [Translation of abstract]

SUB CODE: 12, 09

Card 2/2

ACC NR: AR6025709 SOURCE CODE: UR/0196/66/000/004/I018/I018

AUTHOR: Sipaylov, G. A.; Khor'kov, K. A.

ORG: none

TITLE: Selection of the size of air gap in a load shock generator 15

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 4I120

REF SOURCE: Izv. Tomskogo politekhn. in-ta, no. 138, 1965, 272-279

TOPIC TAGS: generator, emf, shock load generator

ABSTRACT: A connection is established between the degree of permissible distortion in the emf curve of the stator winding and the relative size of the opening of the stator slots. This connection makes it possible to determine the size of the gap when designing shock load generators. [DW]

SUB CODE: 09/

Card 1/1

L 40971-66 EWT(1)

ACC NR: AR6014543 SOURCE CODE: UR/0196/65/000/011/I021/I021

26
B

AUTHORS: Sipaylov, G. A.; Khor'kov, K. A.

TITLE: Specific energy of an impulse-excited oscillator 15

SOURCE: Ref. zh. Elektrotekhnika i energetika, Abs. 11I127

REF SOURCE: Izv. Tomskogo politekhn. in-ta, 1965, 132, 20-25

TOPIC TAGS: pulse oscillator, kinetic energy

ABSTRACT: The dependence of the specific kinetic energy (per unit rotor volume) on the rotor diameter D_p for a single-phase synchronous impulse power oscillator (turbogenerator type) is obtained in the form

$$\Delta T = 48{,}1 \cdot \left(\frac{D_p}{p}\right)^2 \text{ joule/cm}^3,$$

where D_p is in meters and p is the number of pole pairs. Bibliography of 4 citations. [Translation of abstract]

SUB CODE: 09

Card 1/1 mlf UDC: 621.313.322:001.24

KHOR'KOV, L. K.

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Biological Chemistry

Photonephelometric determination of zinc in blood. S. I. Gusev, Z. A. Bitovt, and L. K. Khor'kov (Molotov Med. Inst.). *Biokhimiya* 18, 345-50(1953).—A photonephelometric method for the detn. of Zn in as little as 0.2 ml. of blood, which takes 2-2.5 hrs. to complete, is based upon the reaction which readily takes place between Zn and diantipyrylmethylmethane in the presence of SCN^- in acid soln. Prepn. of diantipyrylmethylmethane chloride: Dissolve 5 g. antipyrine in a small vol. H_2O; add 1-2 ml. HCl (d. 1.19) and 1-2 ml. CH_3CHO. Heat over water bath for 30-40 min. and cool. A cryst. mass will form which should be recrystd. from H_2O. Thoroughly dry in a desiccator. Prepn. of the reagent: Dissolve 1.52 g. NH_4SCN in 98 ml. doubly distd. H_2O; now add with const. stirring 1 ml. 2% alc. soln. of diantipyrylmethylmethane, filter through paper previously washed twice with doubly distd. H_2O. The resultant is a clear soln. of the reagent. The procedure: Place 0.2 ml. of the blood into a quartz Kjeldahl flask, add 1 ml. concd. H_2SO_4, add perhydrol as catalyzer and digest as usual. Wash into a Pt dish with doubly distd. H_2O. Evap. to dryness below 400° and remove all traces of SO_3. To the dry residue add 0.3 ml. *N* HCl, 9.7 ml. doubly distd. H_2O and 0.03-0.05 g. ascorbic acid or 0.2 g. of hydroquinone. Shake well and pass through filter paper (previously washed as above) into a test tube. Take 5 ml. of the filtrate and add to it 9 ml. of the Zn reagent, mix, and allow to stand for 15 min. for max. development of turbidity. Zero point on the nephelometer is established as follows: Take 9.7 ml. doubly distd. H_2O, add to this 0.3 ml. *N* HCl, 0.03-0.05 g. ascorbic acid or 0.2 g. hydroquinone and wait for soln. to clear. Divide into 2 equal parts and add to each 9 ml. of the Zn reagent, mix, let stand for 15 min., then establish the nephelometric zero point. Now add to one of the tubes the soln. prepd. for testing and make nephelometric reading. A nomographic curve of standard values is presented. Use either quartz or Pt dishes exclusively. B. S. Levine

KHOKh[illegible]V, N.

Volatile inhibitors of metals. Nauka i tekh mladozh 16 no.9: 60-61 S '64.

1. Correspondent of the Academy of Pedagogic Sciences of the R. S. F. S. R.

KHOR'KOV, N.S., inzh.

Algorithm for the static calculation surface-type air coolers. Teploenergetika 11 no.3:48-53 Mr '64. (MIRA 17:6)

1. Gosudarstvennyy vsesoyuznyy tsentral'nyy nauchno-issledovatel'skiy institut kompleksnoy avtomatizatsii.

KHOR'KOV, P.; TATARNIKOV, G.

Economic work performed on a volunteer basis. Den. i kred. 20 no.4:61-68 Ap '62. (MIRA 15:4)

1. Upravlyayushchiy Tatarskoy respublikanskoy kontoroy Gosbanka (for Khor'kov). 2. Upravlyayushchiy Khakasskoy oblastnoy kontoroy Gosbanka (for Tatarnikov).
(Banks and banking) (Industrial management)

KHOR'KOV, V.

Speed sports model. Voen.znan. 34 no.12:32-33 D '58.
(MIRA 12:2)

(Hydroplane boats--Models)

KHOR'KOV, V G.

3

Cyclohexane-1,1-dicarboxylic acid. R. I. Gershenovich and V. G. Khor'kov. U.S.S.R. 105,107, Mar. 25, 1957. Cyclohexanecarboxylic acid chloride with oxalyl chloride at 160° in the presence of PCl_5 gives on hydrolysis the title compd. M. Hosch.

4E4j

4n

KHOR'KOV, V.G.

Party and state control in the chemical industry. Khim. prom.
40 no.11:801-804 N '64 (MIRA 18:2)

GOROBETS, Ye.G.; KHOR'KOV, V.L.

Using television units in mines of the Krivoy Rog Basin. Biul.tekh.-ekon.inform. no.10:3-4 '60. (MIRA 13:10)

(Krivoy Rog Basin--Industrial television)

KHOR'KOV, Ye.I.

English walnut in the school garden. Est.v shkole no.5:74-77 S-O '53.
(MLRA 6:8)

1. Institut fiziologii rasteniy imeni K.A.Timiryazeva Akademii nauk SSSR.
(Walnut)

KHOR'KOV, Ye. I.

"Variation in the Ecological-Physiological Conditions of the Walnut (Juglans regia) During Acclimatization in Moscow." Cand Biol Sci, Inst of Plant Physiology imeni K. A. Timiryazev, Acad Sci USSR. (VM, 13 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

OZOL, A.M. [Ozols, A.]; KHOR'KOV, Ye.I.; KUL'TIASOV, M.V., red.; DYMARSKAYA, O., red.; INKIS, R., tekhn. red.

[Walnut, its introduction and acclimatization] Gretskii orekh, ego introduktsiia i akklimatizatsiia. Pod red. M.V.Kul'tiasova. Riga, Izd-vo Akad. nauk Latviiskoi SSR, 1958. 302 p. (MIRA 14:10)
(Walnut) (Plant introduction) (Acclimatization (Plants))

KURSANOV, A.L., akademik, otv. red.; OVCHAROV, K.Ye., doktor biol. nauk, red.; GENKEL', P.A., prof., red.; POLYAKOV, I.M., prof., red.; PROKOF'YEV, A.A., prof., red.; STRONA, I.G., kand. sel'khoz. nauk, red.; SEDENKO, D.M., red.; GENKEL', K.P., red.; KHOR'KOV, Ye.I., red.

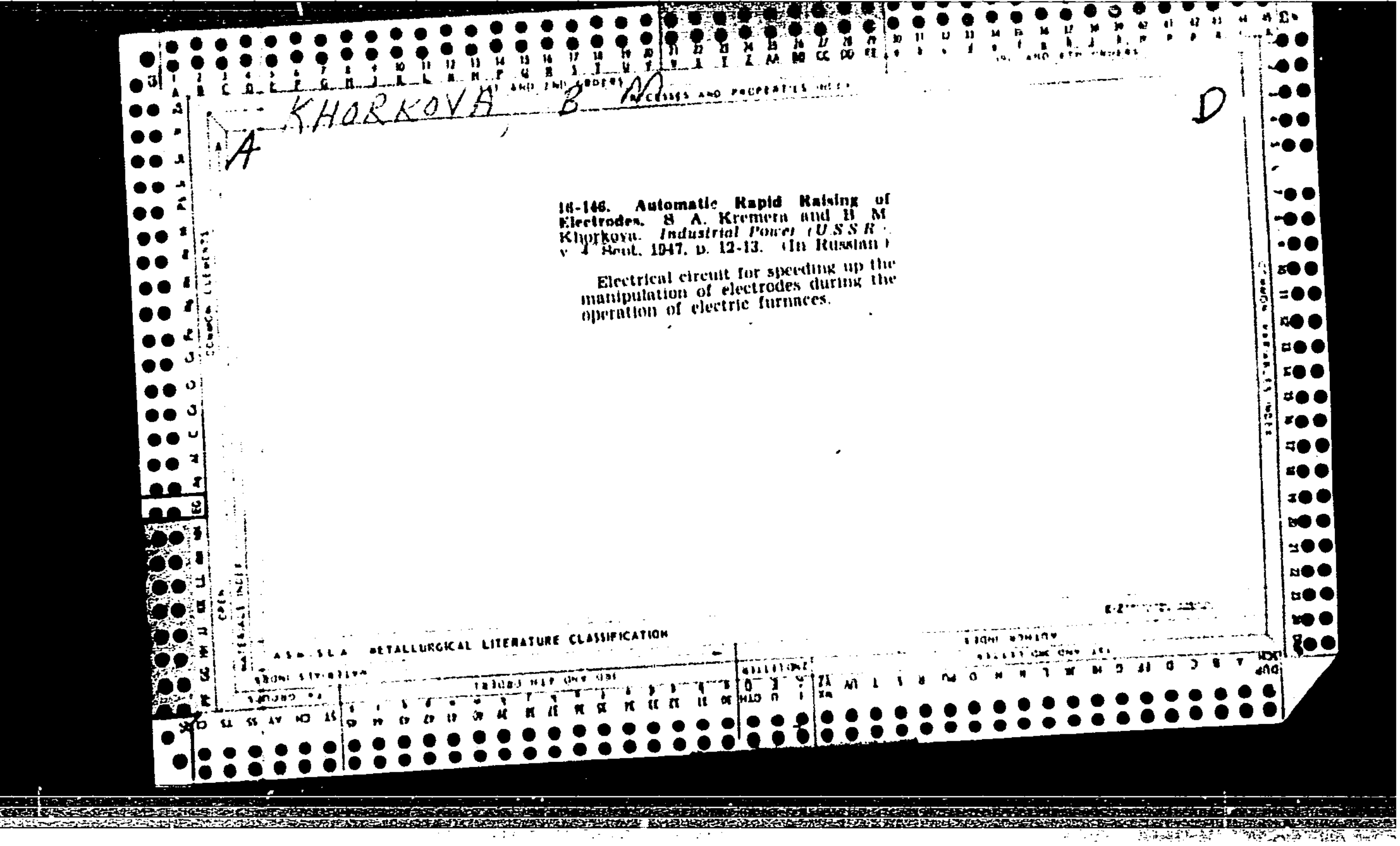
[Biological bases of increasing the quality of farm crop seeds; materials of a scientific session held November 26-30, 1963 in Moscow] Biologicheskie osnovy povysheniia kachestva semian sel'skokhoziaistvennykh rastenii, materialy nauchnoi sessii, sostoiavsheisia 26-30 noiabria 1963 g. v Moskve. Moskva, Nauka, 1964. 278 p. (MIRA 18:3)

1. Akademiya nauk SSSR. Institut fiziologii rasteniy.

POLEVOY, V.V., otv. red.; KHOR'KOV, Ye.I., red.

[Plant growth regulators and nucleic acid metabolism] Reguliatory rosta rastenii i nukleinovyi obmen. Moskva, Nauka, 1965. 209 p. (MIRA 19:1)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Vostochno-Sibirskiy biologicheskiy institut.



KHORKOVA B M

PROCESSES AND PROPERTIES INDEX

A

D

18-146. Automatic Rapid Raising of Electrodes. S. A. Kremera and B. M. Khorkova. *Industrial Power (U.S.S.R.)*, v. 4, Sept. 1947, p. 12-13. (In Russian.)

Electrical circuit for speeding up the manipulation of electrodes during the operation of electric furnaces.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

DEVYATOV, B.N.; KHOR'KOVA, G.S.

Analysis of the dynamic characteristics of counterlow-type industrial processes taking into account change in the speed of the media. Trudy Inst. avtom. i elektrometr. SO AN SSSR no.8:80-92 '64. (MIRA 17:11)

DEVYATOV, B.N.; GIMEL'SHEYN, F.Ya.; KHOR'KOVA, G.S.

Using distributed control for creating high-quality control systems for technological processes of heat and mass transfer. Izv. SO AN SSSR no.2 Ser. tekh. nauk no.1:60-77 '63. (MIRA 16:8)

1. Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

(Heat—Transmission) (Mass transfer)
(Automatic control)

S/200/61/000/008/001/004
D218/D306

26.5200

AUTHORS: Devyatov, B.N., and Khor'kova, G.S.

TITLE: Inertia and regulation of counterflow heat exchangers with variable-speed heat carriers

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Sibirskoye otdeleniye, no. 8, 1961, 36 - 43

TEXT: In previous papers the first of the present authors and Yu.N. Kornev (Ref 1: Tr. In-ta avtomatiki i elektrometrii, SO, AN SSSR, no. 2, 1960) and S.V. Lapshin (Ref 2: Tr. In-ta avtomatiki i elektrometrii, SO, AN SSSR, no. 2, 1960) discussed the transfer functions for heat exchangers of the "tube in tube" type and discussed their inertia and regulation under steady-state conditions. It was assumed that the velocity of the heat carriers was constant. In reality, the velocity is a random function of time and hence a steady-state theory cannot be used. These and other considerations necessitate the study of the dynamic properties of such heat exchangers. The set of equations which describes nonsteady state processes in a counterflow heat exchanger is of the form Eq. (1)

Card 1/10

Inertia and regulation of ...

S/200/61/000/008/001/004
D218/D306

$$\begin{cases} \dfrac{\partial u_1}{\partial t} + w_1 \dfrac{\partial u_1}{\partial x} = \varkappa_1 (U_2 - U_1), \\ \dfrac{\partial u_2}{\partial t} - w_2 \dfrac{\partial u_2}{\partial x} = \varkappa_2 (U_1 - U_2), \end{cases} \qquad (1)$$

where U_1 and U_2 is the temperature of the two moving media in the heat exchanger respectively, w_1 and w_2 are the linear velocities, and $\varkappa_1$, $\varkappa_2$, are coefficients describing the heat exchange between the two media. Since the velocity is an arbitrary function of time, these equations have variable coefficients and their general solution is difficult to obtain. The transfer functions for the problem may be found in two ways. Firstly, one can determine the solution for a step-change in the velocity, and secondly, one can obtain an approximate representation of Eq. (1) by a nonhomogeneous system with constant coefficients. The present authors show that the first method does not lead to the required transfer function but leads to a rather inconvenient formula which is a nonlinear function of the velocity change. It is, therefore, concluded that it is of doubtful value for practical purposes. A simpler, and linear, transfer function can be obtained by the second of

Card 2/10

the above two methods. When the steady-state conditions are disturbed, i.e. when there is a change in the velocity, Eq. (1) assumes the form -Eq. (6)-

$$\begin{cases} \dfrac{\partial (u_{10}+\Delta u_1)}{\partial t} + (w_1+\Delta w_1)\dfrac{\partial (u_{10}+\Delta u_1)}{\partial x} = \varkappa_1 \left[(u_{20}+\Delta u_2) - \right. \\ \qquad\qquad\qquad\qquad \left. - (u_{10}+\Delta u_1)\right], \\ \dfrac{\partial (u_{20}+\Delta u_2)}{\partial t} - (w_2+\Delta w_2)\dfrac{\partial (u_{20}+\Delta u_2)}{\partial x} = \varkappa_2 \left[(u_{10}+\Delta u_1) - \right. \\ \qquad\qquad\qquad\qquad \left. - (u_{20}+\Delta u_2)\right], \end{cases} \tag{6}$$

where u_{10} and u_{20} are the steady-state values of the temperature of the first and second media at t=0. The equations representing the steady-state conditions are of the form -Eq. (7)-

$$\begin{cases} \dfrac{\partial u_{10}}{\partial t} + w_1 \dfrac{\partial u_{10}}{\partial x} = \chi_1 (U_{20} - U_{10}), \\ \dfrac{\partial u_{20}}{\partial t} - w_2 \dfrac{\partial u_{20}}{\partial x} = \chi_2 (U_{10} - U_{20}), \end{cases} \tag{7}$$

where $\frac{\partial u_{10}}{\partial t} = 0 = \frac{\partial u_{20}}{\partial t}$. Subtracting Eq. (7) from Eq. (6) one obtains the following two equations:

$$\begin{cases} \frac{\partial u_1}{\partial t} + w_1 \frac{\partial u_1}{\partial x} + \Delta w_1(t) \frac{\partial u_{10}}{\partial x} + \Delta w_1(t) \frac{\partial u_1}{\partial x} = \chi_1 (U_2 - U_1), \\ \frac{\partial u_2}{\partial t} - w_2 \frac{\partial u_2}{\partial x} - \Delta w_2(t) \frac{\partial u_{20}}{\partial x} - \Delta w_2(t) \frac{\partial u_2}{\partial x} = \chi_2 (U_1 - U_2). \end{cases}$$

Assuming that $\Delta w(t)$ are small and neglecting $\Delta w_1(t) \frac{\partial u_1}{\partial x}$ and $\Delta w_2(t) \frac{\partial u_2}{\partial x}$, one obtains the following differential equations with constant coefficients- Eq. (8)-

$$\begin{cases} \frac{\partial u_1}{\partial t} + w_1 \frac{\partial u_1}{\partial x} = \chi_1 (U_2 - U_1) - \Delta w_1(t) \frac{\partial u_{10}}{\partial x} , \\ \frac{\partial u_2}{\partial t} - w_2 \frac{\partial u_2}{\partial x} = \chi_2 (U_1 - U_2) + \Delta w_2(t) \frac{\partial u_{20}}{\partial x} . \end{cases} \qquad (8)$$

27729
S/200/61/000/008/001/004
D218/D306

Inertia and regulation of ...

This set of equations will hold only in the case of small perturbations. The solution may be found with the aid of the operator method subject to the following boundary conditions:

$$u_1\,(x_1,\,0) = 0, \qquad u_2\,(x_1,\,0) = 0,$$

$$u_1\,(0,t) = {}_1(t), \qquad u_2\,(1,t) = {}_2(t).$$

The final transfer function is then found to be - Eq. (9) -

$$K_{11} = \overline{K}_{11} C\,\alpha_1 \frac{\dfrac{1}{p\tau_1 + \alpha_1 + \lambda_1}\,\dfrac{1 - \bar{e}^{(\alpha_1 - \alpha_2 + \lambda_1)}}{\alpha_1 - \alpha_2 + \lambda_1} - \dfrac{1}{p\tau_1 + \alpha_1 + \lambda_2}\,\dfrac{1 - \bar{e}^{(\alpha_1 - \alpha_2 + \lambda_2)}}{\alpha_1 - \alpha_2 + \lambda_2}}{\dfrac{1}{p\tau_1 + \alpha_1 + \lambda_1} - \dfrac{1}{p\tau_1 + \alpha_1 + \lambda_2}}, \qquad (9)$$

where -

$$\overline{K}_{11} = \frac{(\lambda_1 - \lambda_2)\,e^{\lambda_1 + \lambda_1}}{(\lambda_1 + p\tau_1 + \alpha_1)\,e^{\lambda_1} - (\lambda_2 + p\tau_1 + \alpha_1)\,e^{\lambda_2}};$$

$$\alpha_1 = \frac{\varkappa_1 l}{w_1}; \quad \alpha_2 = \frac{\varkappa_2 l}{w_2};$$

and C is the temperature difference between the first and second media at the output of the apparatus in steady-state conditions. The above transfer function is convenient both for studying the dynamic properties of heat exchangers and also in practical calculations concerned with control problems. A consideration of the transfer functions obtained in this way shows that when there is a change in the velocity and the steady-state conditions are thus upset, the transient process at the output begins instantaneously, i.e. there is no delay, which is consistent with the physical interpretation of the problem. It follows that the operation of the heat exchanger may be better controlled by adjusting the velocity of one of the media rather than by adjusting the temperature. In practice, it is convenient to define the inertia of the heat exchanger. The inertia is numerically equal to the area between the transient process curve and the straight line corresponding to the new steady state conditions, i.e. -

$$I = \frac{1}{m} \int_0^\infty \left[m - u_1(t)\right] dt ,$$

where m is temperature in the new steady-state conditions. The inertia can also be expressed in terms of the transfer function Ref 1.):

$$I = -\lim_{p\to 0}\left[\ln K_{11}\right]' . \qquad (10)$$

A further useful quantity is the dimensionless inertia which may be defined by

$$S = \frac{I}{\tau_1 + \tau_2} .$$

Since the transient process in this case occurs immediately, i.e. there is no delay, the inertia is also a measure of the regulation. Using the linear transfer function given by Eq. (9), it is found that the inertia is given by

- Eq. (11) -

$$S = S_1 + \alpha_1\alpha_2 \frac{2(\alpha_1 - \alpha_2) - \frac{(\alpha_1 - \alpha_2)^2}{2} - 3 + e^{\alpha_2 - \alpha_1}(3 + \alpha_1 - \alpha_2)}{(\alpha_1 - \alpha_2)^2\bigl[\alpha_1(\alpha_1 - \alpha_2) - \alpha_2(1 - e^{\alpha_2 - \alpha_1})} +$$

Card 7/10

$$+\tau_1' \frac{\frac{\alpha_2}{\alpha_1-\alpha_2} - \frac{\alpha_1(\alpha_1-\alpha_2)}{2} - e^{\alpha_2-\alpha_1}\left[\frac{\alpha_2}{\alpha_1-\alpha_2}+\alpha_2\right]}{\alpha_1(\alpha_1-\alpha_2)-\alpha_2(1-e^{\alpha_2-\alpha_1})}, \qquad (11)$$

where

$$\tau_1' = \frac{\tau_1}{\tau_1+\tau_2},$$

and S_1 is the inertia when the temperature of the first medium is disturbed, and is given by

$$S_1 = \alpha_1\alpha_2 \frac{(\alpha_1-\alpha_2)(1-e^{\alpha_2-\alpha_1}) - 2(1-e^{\alpha_2-\alpha_1})}{(\alpha_1-\alpha_2)^2(\alpha_1-\alpha_2 e^{\alpha_2-\alpha_1})} + \tau_1'.$$

27729

Inertia and regulation of ... S/200/61/000/008/001/004
D218/D306

The above formula gives the inertia of the transient process in the heat exchanger as a function of its parameters α_1, α_2, and τ'_1. Fig. 2 shows the curves od equal inertia. This figure is convenient in the selection of the optimum control conditions. However, the values of the parameters which correspond to the optimum control conditions do not always ensure that the apparatus will work satisfactorily in other respects. Fig. 3 shows typical plots of curves of equal inertia for given values of τ'_1. Other figures reproduced may be used to determine the inertia for any values of α_1, α_2, τ'_1. In this way, the authors obtain a set of graphs which describe the change in the inertia as a function of the parameters of the heat exchangers. These may be used to select the optimum parameters for control purposes. There are 8 figures and 3 Soviet-bloc references.

ASSOCIATION: Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR, Novosibirsk (Institute of Automation and Electrometry of the Sibirian Branch AS SSSR, Novosibirsk)

SUBMITTED: February 7, 1961

Card 9/10

KHOR'KOVA, N. N.

KHOR'KOVA, N. N.: "The rate of restoration of nucleoproteides included in various fractions of brain protein". Leningrad, 1955. Leningrad Order of Lenin State U imeni A. A. Zhdanov. (Dissertations for the degree of Candidate of Biological Sciences.)

SO: Knizhnaya Letopis' No. 50 10 December 1955. Moscow.

EXCERPTA MEDICA Sec.2 Vol.10/10 Phy.Biochem. Oct 57

KHORKOVA N.N.

4304. KHORKOVA N.N. Dept. of Biochem., State Univ., Leningrad. *Rate of phosphorus incorporation into nucleic acids of various protein fractions of brain tissue (Russian text) BIOKHIMIJA 1956, 21/6 (709-714) Graphs 1 Tables 4

Proteins were extracted from the brain successively with distilled H_2O, 1 M NaCl and 1 N NaOH. The 4th fraction was the residue; RNA and DNA were extracted from the proteins of these 4 fractions. The rate of P incorporation into RNA of the aqueous fraction was 5 times as great as into RNA of the salt fraction, and that in the DNA of the aqueous fraction was several times greater. Renewal of RNA phosphorus of these fractions was several times greater than of DNA phosphorus. Renewal of nucleic acid P of the alkaline protein fraction and of the residue proteins was so small that it could not be detected by the methods used. The rate of P incorporation into nuclear RNA was greater than in cytoplasmic RNA, and that into the RNA of nucleus and cytoplasm higher than into DNA.

1. Kafedra biokhimii Leningradskogo gosudarstvennogo universiteta imeni A.A.Zhdanova.

KHOR'KOVA, O.G.

MOGILEVSKIY, Ye.M.; KHOR'KOVA, O.G.; FINGER, G.G.

Desulfurizing viscose fiber with solutions of surface-active substances. Tekst. prom. 18 no.11:9-12 N '58. (MIRA 11:12)
(Rayon) (Desulfuration) (Surface active agents)

MOGILEVSKIY, Ye.M.; KHOR'KOVA, O.G.; KUPINSKIY, R.V.

Production of viscose silk by the continuous method.
Khim. volok. no.2:53-59 '59. (MIRA 12:9)

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

5.14CO

77279
SOV/63-4-6-13/37

AUTHORS: Mogilevskiy, Ye. M. (Candidate of Technical Sciences), Kupinskiy, R. V ., Khor'kova, O. G.

TITLE: Machinery for the Continuous Process of Viscose Rayon Production

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 6, pp 770-776 (USSR)

ABSTRACT: This is a review of literature and industrial data concerning the construction and use of machinery for continuous process of viscose rayon production. The authors stated that in the USSR viscose cord is produced only by the continuous process on machines designed at the All-Union Scientific Research Institute of Synthetic Fibers and produced by the Machine Works imeni Karl Marx (S. A. Tairov, A. B. Chichkhiani, Equipment of the Synthetic Fibres Factories, Gizlegprom, 1955, p 349). The factory equipment of German companies "Bemberg" and "I. G. Farbenindustrie" and U.S. "Industrial Ray. Corp."

Card 1/2

Machinery for the Continuous Process
of Viscose Rayon Production

77279
SOV/63-4-6-13/37

are described. Schematic drawings and descriptions of the following machines are given: "Nelson," "Maurer," "Textima" (designed and produced in East Germany), and others. There are 22 references, 2 U.S., 3 U.K., 3 German, 14 Soviet. The U.S. and U.K. references are: S. W. Barkor, R. Albeston, J. Text. Inst., 39, Nr 1, 3 (1948); ibid., 39, Nr 1, 4 (1948); British Patent 16495, 1907; Olive, Chem. Metall. Eng., 45, 168 (1938); Ray. Synthetic Text., Nr 6, 39 (1950).

Card 2/2

S/183/60/000/003/015/016/XX
B004/B067

AUTHORS: Mogilevskiy, Ye. M., Finger, G. G., and Khor'kova, O. G.

TITLE: Distribution of Elongation Deformations in Viscose Fibers

PERIODICAL: Khimicheskiye volokna, 1960, No. 3, pp. 41-43

TEXT: The authors attempted to find out whether the viscose fibers produced by discontinuous centrifuging in the form of cakes differ from the viscose fibers produced in a continuous process. The experimental data concerning breaking length, elongation, and bending test are given in Tables 1, 2: Table 1. Physicomechanical characteristic values of rayon in the layers of the cake

Layers of the cake		Yarn number	breaking length, km		elongation, %		Number of double bendings
			dry	wet	dry	wet	
before shrinkage	outside	7.20	26.7	14.2	12.8	13.6	1059
	center	7.18	25.6	14.0	13.1	14.6	1087
	inside	7.18	24.9	13.1	13.7	15.2	1213

Card 1/3

Distribution of Elongation Deformations in Viscose Fibers

S/183/60/000/003/015/016/XX
B004/B067

Layers of the cake		Yarn number	breaking length, km		elongation, %		Number of double bendings
			dry	wet	dry	wet	
after shrinkage	outside	7.15	24.0	12.3	13.1	13.9	1192
	center	7.05	24.3	12.0	13.7	14.7	1028
	inside	7.15	21.8	11.2	14.2	15.6	1784

Table 2. Physicomechanical characteristic values of the fiber produced in continuous processes

Fiber	Yarn number	breaking length, km		elongation, %		Number of double bendings	Type of drying rollers
		dry	wet	dry	wet		
before shrinkage	7.41	26.6	13.4	8.7	14.6	1258	Two cylinders
	7.24	26.6	12.9	9.7	15.2	1615	Cone and cylinder
	7.34	27.4	13.2	10.2	15.3	1693	Two cones
after shrinkage	7.03	24.8	12.2	13.6	15.2	1466	Two cylinders

Card 2/3

Distribution of Elongation Deformations
in Viscose Fibers

S/183/60/000/003/015/016/XX
B004/B067

The values of the fiber obtained by the centrifuging method are different within the cake, and lower than in the fiber produced in a continuous process. Furthermore, the reversible and irreversible deformation were determined in the case of elongation. Elongation up to 40% of the breaking elongation is fully reversible . With stronger elongation, the irreversible deformation increases linearly. Here, the fiber produced in a continuous process showed lower values of irreversible deformation. There are 5 figures, 2 tables, and 6 Soviet references.

ASSOCIATION: VNIIV (All-Union Scientific Research Institute of Synthetic Fibers)

Card 3/3

MOGILEVSKIY, Ye.M.; XHOR'KOVA, O.G.; FINGER, G.G.; PREDVODITELEVA, A.D.; KUZ'MINA, G.P.; MIKHAYLENKO, P.P.; TUMAYAN, S.A.

Continuous process for producing viscose rayon and for its finishing. Khim. volok. no. 6:25-27 '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Mogilevskiy, Khor'kova, Finger). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut trikotazhnoy promyshlennosti (for Predvoditeleva, Kuz'mina). 3. TSentral'nyy nauchno-issledovatel'skiy institut shelka (for Mikhaylenko, Tumayan).
(Rayon)

MOGILEVSKIY, Ye.M.; KHOR'KOVA, O.Ye.; FINGER, G.G.; [illegible] N.V.

Effect of the spinnability into filaments on the properties of viscose silk produced with the continuous method. Khim. volok. no.4:41-44 '64. (MIRA 18:4)

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

KHORLIKOVA, L.Ya.

Production of glass for export in Czechoslovakia. Stek.i ker. 20 no.2:41-42 F '63. (MIRA 16:2)
(Czechoslovakia--Glass manufacture)

KHORLIN - A. YA.

4

Isoxazole series. II. Reactions of 3-chloromethylisoxazole. N. K. Kochetkov and A. Ya. Khorlin (Moscow State Univ.). *Zhur. Obshchei Khim.* 25, 1212-18(1955); cf. *C.A.* 47, 9961e.—Refluxing 9 g. KSCN, 70 ml. MeOH, and 7.1 g. 3-chloromethylisoxazole (I) 7 hrs. followed by diln. and chilling gave 70% *3-thiocyanatomethylisoxazole*, m. 52-3° (from petr. ether). I and KOAc in AcOH gave after 3 hrs. reflux 55-61% *3-acetoxymethylisoxazole*, b_{14} 88-90°, d_{20} 1.1922, n_D^{20} 1.4570. To a hot soln. of KCN in aq. EtOH was added I and, after the initially vigorous reaction, the mixt. was refluxed 1.5 hrs. yielding 68% *3-cyanomethylisoxazole*, b_4 87-8°, d_{20} 1.1781, n_D^{20} 1.4720, which on standing solidifies, m. 15-17°. Hydrolysis at room temp. 3 days in concd. HCl gave 86% *isoxazole-3-acetic acid*, m. 85-5.5° (from C_6H_6). Heating this with powd. Cu gave 11% *3-methylisoxazole*, b_{760} 118-8.5°, d_{20} 1.0183, n_D^{20} 1.4316. The same formed on heating the acid with Cu in quinoline. I (35.5 g.) and 66 g. $CH_2(CO_2Et)_2$ in 100 ml. Et_2O was treated over 0.5 hr. with 6.9 g. Na in 100 ml. dry EtOH; after 4 hrs. at 40-50°, 1 hr. at 55-60° and 0.5 hr. at 100°, the mixt. was dild., yielding after extn. with Et_2O 40% *di-Et 3-isoxazolylmethylmalonate*, b_5 150-3°, d_{20} 1.1577, n_D^{20} 1.4575; this shaken with concd. HBr 3-4 days and heated to 30-40° *in vacuo* gave 78% *3-isoxazolylmethylmalonic acid*, m. 152-4° (from H_2O). This refluxed with 2% HCl and C_6H_6 with azeotropic removal of H_2O gave *β-(3-isoxazolyl)propionic acid*, m. 73.5-4° (from MePh), after final heating to 180-90°. I treated with aq. Et_2NH 45 min. at 70-80° gave 78% *3-diethylaminomethylisoxazole*, b_2 60-6.5°, d_{20} 0.9789, n_D^{20} 1.4534; *picrate*, m. 85-5.5°. I with concd. NH_4OH, satd. continuously with NH_3 4 hrs. gave 43.5% *3-aminomethylisoxazole*, b_{14} 82°, d_{20} 1.1633, n_D^{20} 1.4900; *Bz deriv.*, m. 102-3°; *HCl salt*, decomp. 180-2°. I mixed with urotropine in $CHCl_3$ forms a complex, decomp. 108-10°, which decompd. conventionally, yielding 10-15% 3-aminomethylisoxazole. Also in *J. Gen. Chem. U.S.S.R.* 25, 1159-63(1955)(Engl. translation).

G. M. Kosolapoff

KHORLIN, A. YA.

Separation of β-chlorovinyl ketones from organic solvents. V. T. Klimko, N. K. Kochetkov, V. A. Mikhalev, A. P. Skoldinov, and A. Ya. Khorlin. U.S.S.R. 103,767, Sept. 25, 1956. To solns. of chloro ketones $RCOCH:CHCl$ in org. solvents is added a tertiary amine and the ketones are sepd. as salts of quaternary NH_4 bases. M. Hosch

Chem

5

KHORLIN, A. Ya.

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

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26699.

Author : Kochetkov, N.K., Khorlin, A.Ya., Gottikh, B.P.; Nesmeyanov, A.N.

Inst : Academy of Sciences of USSR.

Title : Synthesis of Alkenyl-β-chlorovinylketones.

Orig Pub : Izv. AN SSSR, Otd. khim. n., 1956, No. 9, 1053 - 1058.

Abstract : The following methods of synthesis of alkenyl-β-chlorovinylketones (ACVK) were developed: the method of direct condensation of acetylene (I) with chloroanhydrides (CA) of α,β-unsaturated acids in presence of $AlCl_3$, and the method of condensation of I with CA of α- or β-chloro-replaced acids in presence of $AlCl_3$ with following dehydrochlorination of the produced α-

Card 1/6

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

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26699.

(or β)-chloroalkyl-β-chlorovinylketone. Experiments with CA of α- or β-bromoreplaced acids did not succeed. It is shown that ACVK react with β-naphthol (II) in presence of $FeCl_3$ producing ferrochlorides of 2-alkenylnaphthopyrilium. 88 g of CA of butyric acid, 119 g of SO_2Cl_2 and 1 g of I_2 are heated (45 to 50 hours at 90 to 110°), distilled, the fraction of the boiling point 115 to 150° is collected, shaken with mercury, distilled using a column still (10 to 15 theoretical plates); the yield of CA or α-butyric acid (III) is 60.3%, boiling point 129 to 132°/ 756 mm, $n^{20}D = 1.4475$, $d_4^{17} = 1.2360$. CA of

Card 2/6

USSR/Organic Chemistry. Synthetic Organic Chemistry.

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26699.

isovaleric acid, 167 g of SO_2Cl_2 and 1 g of I_2, the yield was 58%, boiling point 145.5 to 146.5°/ 749 mm. I is conducted into a solution of 81 g of CA of β-chloropropionic acid (V) in 150 mlit of CCl_4 (6 hours) and 85 g of $AlCl_3$ is introduced (2 hours), at 10 to 15°), poured out on ice, $CHCl_3$ is extracted with 63 g of a mixture of vinyl-β-chlorovinylketone (VI) and β-chloroethyl-β-chlorovinylketone (VII), treated with 65 g of $C_6H_5N(C_2H_5)_2$ (VIII) at about 20° and 1 hour at about 100°, diluted with ether, filtered, washed with 5% H_2SO_4; the yield of VI is 31.5%, boiling point 48 to 49.5°/ 14 mm, $n^{20}D = 1.4938$, $d_4^{20} = 1.1274$. 57 g of a

Card 3/6

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

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26699.

mixture of propenyl-β-chlorovinylketone (IV) and α-chloropropyl-β-chlorovinylketone, boiling point 81 to 86°/15 mm, was received analogously of 81 g of III and 85 g of $AlCl_3$ in 200 mlit of CCl_4 by conducting I (7 to 8 hours at 15 to 20°); after the treatment with 51 g of VIII, the yield of XI was 47.3%, boiling point 70 to 72°/ 10 mm, melting point 38 to 39°. A fraction of the boiling point of 78 to 92°/10 mm was received in the amount of 30 g from 60 g of IV and 60 g of $AlCl_3$ in 150 mlit of dichloroethane (X) by conducting I (7 hours at 15 to 20°); it was treated with 32.5 g of VIII, yield of isobutenyl-β-chlorovinylketone (XI) was 32.7%, boiling point 76 to 79°/11 mm. 13.3 g of $AlCl_3$ is added to

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 848

Author: Kochetkov, N. K., Khorlin, A. Ya., and Karpeyskiy, M. Ya.

Institution: None

Title: Direct Synthesis of Aryl-β-chlorovinylketones

Original Periodical: Zh. obshch. khimii, 1956, Vol 26, No 2, 595-598

Abstract: A convenient method is described for the synthesis of aryl-β-chlorovinylketones ArCOCH = CHCl (I), where Ar can be C_6H_5 (a), n-$CH_3C_6H_4$ [sic] (b), n-ClC_6H_4 (c), o-BrC_6H_4 (d), n-$NO_2C_6H_4$ (e) [Tr. Note: n- apparently is equivalent to p-], by the direct reaction of ArCOCl with C_2H_2 in the presence of $AlCl_3$ and ethylene chloride. To a solution of 100 gms C_6H_5COCl in 100 ml ehtylene chloride cooled to zero degrees, 95 gms of anhydrous $AlCl_3$ are added with cooling and constant mixing (temperature 10°); next, C_2H_2 is passed through the mixture with vigorous stirring for 6-7 hours at 40-50°; the reaction mixture is then poured over ice, and the organic layer separated and dried

Card 1/2

ether).

Card 2/2

KHORLIN, A. Ya.

Chem

3

Derivatives of bicyclo[1.2.2]heptane. I. Condensation of 2-acyl-3-chlorobicyclo[1.2.2]heptanes with malonic ester and analogous compounds. N. K. Kochetkov and A. Ya. Khorlin. *Zhur. Obshchei Khim.* 26, 3430-40(1956); cf. Nesmeyanov, *et al.*, *C.A.* 47, 6876g.—From 78 g. EtCO-CH:CHCl and 100 g. cyclopentadiene was prepd. 91-6% *2-propionyl-3-chlorobicyclo[1.2.2]hept-5-ene*, b_1 91-4°, n_D^{20} 1.4985, d_{20} 1.1322 (cf. above ref. for technique), which darkens in storage and loses HCl. Hydrogenation over 6% Pd on $BaSO_4$ in Et_2O gave 90% *2-propionyl-3-chlorobicyclo[1.2.2]heptane* (I), b_4 90-2°, 1.4890, 1.1137. Similarly was prepd. 93% *2-butyryl-3-chlorobicyclo[1.2.2]heptane* (II), b_4 108-10°, 1.4860, 1.0781. To Na salt suspension from 65 g. $CH_2(CO_2Et)_2$ and 8.5 g. Na in 400 ml. dry C_6H_6 was added 25 g. 2-acetyl-3-chlorobicyclo[1.2.2]heptane at 0°; after gentle refluxing 12 hrs. and usual aq. treatment there was obtained after washing the org. layer with 10% NaOH and acidifying the ext. 0.5 g. oil which gave red color with $FeCl_3$ and was not studied further; the org. layer on distn. gave 57.5% *di-Et 2-acetylbicyclo[1.2.2]hept-3-ylmalonate*, $b_{0.1}$ 137.5-0.5°, n_D^{20} 1.4710, m. 19-21°, also formed in 64.2% yield in similar reaction in dry EtOH in 20 hrs. at 50°. The product forms an *oxime*, m. 87-8°; *2,4-dinitrophenylhydrazone*, m. 124-5°. Similarly I gave *di-Et 3-propionylbicyclo[1.2.2]hept-3-ylmalonate*, b_2 148-50°, n_D^{20} 1.4710; *2,4-dinitrophenylhydrazone*, orange, m. 118-19.5°. II similarly gave 67.5% *di-Et 2-butyrylbicyclo[1.2.2]hept-3-ylmalonate*, b_2 154-6°, n_D^{20} 1.4698; *2,4-dinitrophenylhydrazone*, oil. 2-Acetyl-3-chlorobicyclo[1.2.2]heptane and $EtCH(CO_2Et)_2$ similarly gave 42% *di-Et ethyl-2-acetylbicyclo[1.2.2]hept-3-ylmalonate*, b_1 151-4°, n_D^{20} 1.4770 (prepd. in EtOH, this

Inst. Pharmacology + Chemotherapy
AMS USSR

N. K. Kochetkov and A. Ya. Kharlin

5

product also $b_{0.5}$ 146-7°, n_D^{20} 1.4740); *2,4-dinitrophenylhydrazone*, orange, m. 103-4°. To EtOH soln. of 35 g. $AcCH_2CO_2Et$ was added 4.6 g. Na in EtOH, followed by 17.5 g. *2-Ac analog* of I and after 17 hrs. at 60° there was obtained 73.3% *Et 2-acetylbicyclo[1.2.2]hept-5-ylacetoacetate*, $b_{1.5}$ 144-6°, n_D^{20} 1.4803, which gives a violet color with $FeCl_3$. Similar reaction of 2-acetyl-3-chlorobicyclo[1.2.2]hept-5-ene with $CH_2(CO_2Et)_2$ and Na in EtOH gave 78% *di-Et 2-acetylbicyclo[1.2.2]hept-5-en-3-ylmalonate* (III), $b_{0.5}$ 148.5-9.5°, m. 19-20°, whose *2,4-dinitrophenylhydrazone*, orange, m. 126-7°. Hydrogenation of this ester over Pd-$BaSO_4$ in EtOH gave the *satd. analog*, identical with above described specimen. Reaction of 25 g. $CH_2(CO_2Et)_2$, 2.3 g. Na, and 12.0 g. 2-benzoyl-3-chlorobicyclo[1.2.2]hept-5-ene in C_6H_6 gave in 20 hrs. at 60°, and removal of material up to $b_{0.5}$ 200°, a dark residue (13.1 g.), which heated with aq. MeOH KOH 1 hr. gave *di-K 2-benzoylbicyclo[1.2.2]hept-5-en-3-ylmalonate*, which with dil. HCl gave the *free acid*, decomp. 135-7°. Heating III to 260° gave a distillate of EtOH and cyclopentadiene, and distg. the residue *in vacuo* gave *6-methyl-3-carbethoxy-α-pyrone*, m. 87-8°. Similar treatment of the 2-Bz analog of III also gave cyclopentadiene and 38% *6-phenyl-3-carbethoxy-α-pyrone*, m. 105.5-6.5°. Slow distn. of EtOH from 10 g. di-Et 2-acetylbicyclo[1.2.2]hept-3-ylmalonate and 1.5 g. Na in 30 ml. EtOH until a freely-flowing powder was formed, gave on aq. treatment and extn. with Et_2O, and acidification of the aq. layer 2.88 g. pure *1,3-dioxo-5,8-endomethylenedecahydronaphthalene*, m. 159.5-60° (from Me_2CO); the total yield after working up the residues was 64.7%. Similar treatment of the 2-propionyl analog gave 52.2% *2-methyl-1,3-*

2/3

N.K. Kochetkov and A.Ya. Khorlin

3

dioxo-5,8-endomethylenedecahydronaphthalene, m. 147-8.5°, which can be formed in one operation from the crude ester by treatment with dil. HCl and extn. with Et_2O; the yield is 33.5%. Methylation with MeI in EtONa-EtOH in 6 hrs. at reflux gave 20% *2-methyl-1,3-dioxo-5,8-endomethylenedecahydronaphthalene*, m. 147.5-8.5°, identical with the above prepn. G. M. Kosolapoff

3/3

PM

KHORLIN, A. Ya., Cand Chem Sci -- (diss) "Investigation ~~in~~ of the Series ~~of~~ Bicyclo-(1.2.2)heptane." Mos, 1957. 9 pp (Mos State Univ im M. V. Lomonosov, Chemistry Faculty), 100 copies (KL, 47-57, 86)

12

KHORLIN, A.YA.

452

AUTHORS: Klimko, V. T.; Khorlin, A. YA; Mikhalov, V. A., Skoldinov, A. P.; Kochetkov, N. K.

TITLE: Beta-Aminovinyl Ketones. Part 7. Reaction of Beta-chlorovinyl Ketones with Tertiary Amines (Beta-aminovinilketony. VII. Vzaimodeystviye beta-khlorvinilketonov s tretichnymi aminami)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 1, pp. 62-65 (U.S.S.R.)

ABSTRACT: The reaction of beta-chlorovinyl ketones with tertiary amines was investigated for the purpose of obtaining quaternary ammonium salts containing the ketovinyl radical. Beta-chlorovinyl ketones, when subjected to numerous reactions, are capable of exchanging their highly mobile chlorine atom into other groupings thereby forming beta-substituted alkylvinyl ketones. The reaction was found to be so smooth that it has been recommended for the separation of beta-chlorovinyl ketones without their preliminary purification directly from the reaction mixture. The same smooth reaction was observed also in the case of pyridine (a similar experiment with methyl-beta-chlorovinyl ketone and pyridine was carried out by A. Ya. Yakubovich and Ye. N. Merkulova (6). Very interesting results were obtained during the hydrolysis of one of the obtained salts - triethyl-(beta-benzoylvinyl)-ammonium chloride - when

Card 1/2

Card 2/2

Khorlin, A. Ya

79-2-38/58

AUTHORS: Kochetkov, N. K.; Khomutova, Ye. D.; Karpeyskiy, M. Ya.; Khorlin, A. Ya.

TITLE: Study of Isoxazole. Part 3. Synthesis of Arylisoxazoles (Issledovaniye v ryadu izoksazola. III. Sintez arilizoksazolov)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 452-457 (U.S.S.R.)

ABSTRACT: It is shown that aryl-beta-chlorovinyl ketones react with hydrochloride hydroxylamine under the very same conditions as their aliphatic analogues. When both components are heated in methanol, they produce high yields of arylisoxazoles. The reaction of alkyl-beta-chlorovinyl ketones with hydroxylamine yields a mixture of alpha- and gamma-isomers (5- and 3-substituted isoxazoles) with 50 - 60% of the alpha-form. The reaction with phenyl-beta-chlorovinyl ketone produces a mixture of alpha- and gamma-phenylisoxazoles in approximately equal amounts. The alpha-isomer content in the phenylisoxazole was 62-67%. Phenyl-beta-chlorovinyl ketones with substitutes in the aromatic ring react smoothly with hydroxylamine, giving high yields of arylisoxazoles. It is shown that the ratio of the alpha- and gamma-substituted isoxazoles formed during the reaction of beta-substituted vinyl ketones RCOCH = CHX with hydroxylamine depends

Card 1/2

upon the nature of the substitute X. When the substitute X = NR_2, the reaction yields a practically pure alpha-substituted isomer.

Experiments also showed that alkyl-beta-dialkylaminovinyl ketones during reaction with hydroxylamine gave high yields of alkylisoxazoles and the reaction in this case tends exclusively toward the formation of alpha-isomers.

There are 13 references, of which 6 are Slavic.

ASSOCIATION: Moscow State University and Institute of Pharmacology and Chemiotherapy of the USSR Academy of Medical Sciences

PRESENTED BY

SUBMITTED: February 20, 1956

AVAILABLE: Library of Congress

KHORLIN, A. YA.

7

Derivatives of bicyclo[1.2.2]heptane. II. Derivatives of 2-acyl-3-aminobicyclo[1.2.2]heptane. N. K. Kochetkov, A. Ya. Khorlin, and O. S. Chizhov (State Univ., Moscow). *Zhur. Obshchei Khim.* 27, 1045-8(1957); cf. C.A. 51, 9603e.—Refluxing 35.5 g. 2-acetyl-3-chlorobicyclo[1.2.2]heptane in 150 ml. Et_2NH 9 hrs., sepg. the amine salt, concg. the filtrate and adding 5*N* HCl gave after removal of of neutral materials with Et_2O, followed by addn. of 20% NaOH, 71.2% *2-acetyl-3-diethylaminobicyclo[1.2.2]heptane* (I), b_7 104-6°, n_D^{20} 1.4853, d_{20} 0.9635. The neutral material gave 17.3% *2-acetylbicyclo[1.2.2]hept-2-ene*, b_1 65-9°, n_D^{20} 1.4970. I formed: *picrate*, m. 163-4°; *HCl salt*, m. 131-2°; *methiodide*, m. 174°; *ethiodide*, m. 135-6°. Similar condensation using 2-propionyl-3-chlorobicyclo[1.2.2]heptane gave 82% *2-propionyl-3-diethylaminobicyclo[1.2.2]heptane*, b_4 117-19°, n_D^{20} 1.4812, d_{20} 0.9441; *picrate*, m. 150-1°; *methiodide*, m. 143-4°. Similarly was prepd. 43.5% *2-butyryl-3-diethylaminobicyclo[1.2.2]heptane*, b_4 120-2°, n_D^{20} 1.4808, d_{20} 0.9172; *methiodide*, m. 136-7°. Similarly was prepd. 63% *2-benzoyl-3-diethylaminobicyclo[1.2.2]heptane*, m. 179-80°; *picrate*, m. 177-8°. I (10.5 g.) and 8 g. $CH_2(CO_2Et)_2$ heated in 25 ml. EtOH and 0.15 g. Na 10 hrs. at 65°, dild. with H_2O and acidified, gave 40% *di-Et 2-acetylbicyclo[1.2.2]hept-3-ylmalonate*, b_1 104-6°, n_D^{20} 1.4736 (cf. *loc. cit.*); *2,4-dinitrophenylhydrazone*, m. 123°. I methiodide and $CH_2(CO_2Et)_2$ similarly gave 55% *2-acetylbicyclo[1.2.2]hept-3-ylmalonate*, identical with the above.

G. M. Kosolapoff

5
4E3d
4E4j

Khorlin, A. Ya.

ARENDARUK, A.P.; BUDOVSKIY, E.I.; GOTTIKH, B.P.; KARPEYSKIY, M.Ya.
KUDRYASHOV, L.I.; SKOLDINOV, A.P.; SMIRNOVA, N.V.; KHORLIN, A.Ya.
KOCHETKOV, N.K.

Dihydrosarcomycin and related compounds. Part.1. Zhur.ob.khim.
27 no.5:1312-1318 My '57. (MLRA 10:8)

1. Institut farmakologii i khimioterapii Akademii meditsinskikh
nauk SSSR.

(Antibiotics)

79-12-2/43

AUTHOR: Kochetkov, N. K., Khorlin, A. Ya.

TITLE: Derivatives of Bicyclo[1,2,2]heptane (Proizvodnyye bitsiklo(1,2,2) geptana). III. 2-Acylbicyclo[1,2,2]-2-heptenes and Some of Their Reactions (2-Atsilbitsiklo(1,2,2)gepteny-2 i nekotoryye ikh reaktsii)

PERIODICAL: Zhurnal obshchey khimii, 1957, Vol 27, Nr 12, pp 3182 - 3189 (USSR)

ABSTRACT: Reaction of 5 g. p-$MeC_6H_4OCHC:CHCL$ with 5;3 g. cyclopentadiene overnight in petroleum ether gave 75% 2-(p-toluyl)-3-chlorobicyclo[1,2,2]-hept-5-ene, m. 91.5 - 2° (EtOAc). Similarly were obtained: 80% 2-(p-chlorobenzoyl)-3-chlorobicyclo[1,2,2]hept-5-ene (I), m. 94.5 - 5°; 76% 2-(p-nitrobenzoyl)-3-chlorobicyclo[1,2,2]hept-5-ene, m. 147 - 8° (AcOH). Hydrogenation of I over Pd gave 2-(p-chlorobenzoyl)bicyclo-[1,2,2]heptane, m. 109 - 9.5° (EtOH); such hydrogenations proceed more rapidly in Me_2CO than in EtOH or Et_2O. Heating 40 g. 2-acetyl-3-chlorobicyclo[1,2,2]heptane in C_6H_6 with 100 ml. Et_3N and a little hydroquinone 20 — 5 hrs. at reflux gave a precipitate of $Et_3N \cdot HCl$ and a filtrate which yielded 50% 2-acetylbicyclo[1,2,2]-hept-1-ene (II), b_{3-4} 62 - 6°, b_5 76 - 8°, n_D^{20} 1.4992, d_{20} 1.0102 (a lacrimator),

Card 1/3

79-12-2/43

Derivatives of Bicyclo (Cont)

whose 2,4-dinitrophenylhydrazone has m. 153° (abs. max. 369 m μ). Similarly 2-propionyl-3-chlorobicyclo[1,2,2]heptane gave 77.4% 2-propionylbicyclo[1,2,2] hept-2-ene (III), b_2 59 – 60°, n^{20}_D 1.4950, d^{20}_4 0.9965; (2,4-dinitrophenylhydrazone with m. 145.5 – 6°, abs. max. 369 - 70 m μ). Similarly prepared from the 3-chloro derivative was 74.2% 2-butyroylbicyclo[1,2,2]hept-2-ene, b_3 82 - 4°, n^{20}_D 1.4915, d^{20}_D 0.9861 (2,4-dinitrophenylhydrazone, m. 129 - 30°, abs. max. 369 - 70 m μ). Similar treatment of 2-benzoyl-3-chlorobicyclo[1,2,2]heptane with Et_3N and treatment of the crude product with diluted H_2SO_4 gave 46,5% 2-benzoylbicyclo[1,2,2]hept-2-ene (IV), m. 80 - 1° ($\lambda_{max.}$ 253.8 m μ) (Et_2O); the mother liquor gave 20% of apparently a dimer of the above, m. 130 - 1°, which has no double bond. Reaction of II with $NaCH(CO_2Et)_2$ in 6 hrs. at 50 - 60° gave after aq. treatment 78.6% di-Et 2-acetylbicyclo[1,2,2]hept-3-ylmalonate, b_2 157 - 60°, n^{20}_D 1.4720 (2,4-dinitrophenylhydrazone, m. 130 - 1°). III refluxed 6 hrs. with Et_2NH gave 74.1% 2-propionyl-3-diethylaminobicyclo[1,2,2]heptane, b_3 89 - 90°, n^{20}_D 1.4805, d^{20}_4 0.9440; HCl salt, m. 141.5 - 2.5°; methiodide, m. 143 - 4°. Hydrogenation of IV over Pd gave 2-benzoylbicyclo[1,2,2]heptane, b_{10} 155 - 80°, n^{20}_D 1.5540 (2,4-dinitrophenylhydrazone, m. 155 - 6°). $PhCOCH:CH_2$

Card 2/3

Derivatives of Bicyclo (Cont)

and cyclopentadiene readily gave 80% 2-benzoylbicyclo[1,2,2]hept-5-ene, b_7 135 - 6°, n_D^{20} 1.5660; hydrogenation over Pd gave the saturated analogue. There are 7 references, 5 of which are Soviet, 1 German, and 1 English.

ASSOCIATION: Nauchno-issledovatel'skiy institut farmakologii i khimoterapii (Scientific Research Institute of Pharmacology and Chemotherapy)

SUBMITTED: Nov. 12, 1956

AVAILABLE: Library of Congress

Card 3/3 1. Cycloheptanes--Derivatives 2. Cycloheptanes--Chemical reactions

AUTHORS: Kochetkov, N. K., Khorlin, A. Ya. SOV/79-28-7-46/64

TITLE: Investigation in the Isoxazol Series (Issledovaniye v ryadu izoksazola) VI. On the Synthesis of the 3-Substituted Isoxazol (VI. O sinteze 3-zameshchennykh izoksazolov)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 7, pp. 1937-1940 (USSR)

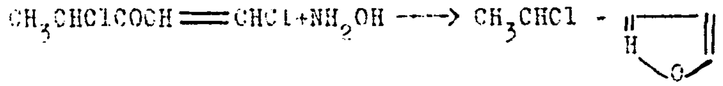
ABSTRACT: One of the most simple methods of the synthesis of isoxazol, the reaction of β-chlorovinylketones with hydroxylamine, was realized by Kochetkov and his collaborators (Refs 1, 2), it is, however, accompanied by two competing processes, viz. the formation of two isomeric 3- and 5-substituted isoxazols. Kochetkov further showed (Ref 3) that the β-dialkylaminovinylketones with hydroxylamine cause to form practically pure 5-substituted isoxazols, and that the chloromethyl-β-chlorovinylketone reacts under the formation of 3-chloromethyl isoxazol. This fact proves that in this case the nucleophilic attack of hydroxylamine takes place at the carbonyl group according to the scheme mentioned. To explain this problem the authors investigated the reaction of α-chlorethyl-β-chloro-

Card 1/2

SOV/79-28-7-46/64

Investigation in the Isoxazol Series. VI. On the Synthesis of the 3-Substituted Isoxazol

vinylketone with hydroxylamine. It turned out that the synthesis of α-chlorethyl-β-chlorovinyl ketone, as well as that of the β-chlorethyl-β-chlorovinylketone already known, does not meet with any difficulties (according to the method mentioned in reference 4). In the condensation of the α'-chlorethyl-β-chlorovinylketone with hydroxylamine the α'-chlorethylisoxazol was obtained in good yield (without any formation of deposits) in its treatment with sodium alcoholate according to Claisen (Klayzen) (Ref 5). This indicates a 3-substituted isomer:



In the reactions of the α-chloralkyl-β-chlorvinylketones with hydroxylamino besides the oxazols also small amounts of 5-substituted inomers are formed. The synthesis of the 3-alkylisoxazols by the reduction of the corresponding 3-α'-chloralkylisoxazols with zinc dust was elaborated. There are 9 references, 6 of which are Soviet.

Card 2/2

Inst. Pharmacology v Chemotherapy, AMS USSR

AUTHORS: Khorlin, ~~A. Ya.~~, Chizhov, O. S., Kochetkov, N. K. SOV/79-28-12-41/41

TITLE: Derivatives of Bicyclo (1,2,2) Heptane (Proizvodnyye bitsiklo (1,2,2) geptana) IV. Some Amines and Amino Alcohols of the Bicyclo (1,2,2) Heptane Series (IV. Nekotoryye aminy i aminospirty ryada bitsiklo (1,2,2) geptana)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 12, pp 3345 - 3351 (USSR)

ABSTRACT: The amines of bicyclo (1,2,2) heptane series owing to the physiological activity of some of their most important compounds are attracting the attention of scientists (Refs 1,2). The authors had recently described the synthesis of some amino ketones of this series (Ref 3), namely, the synthesis of some derivatives of 2-acyl-3-dialkyl aminobicyclo (1,2,2) heptane. To continue the investigation of the physiological activity of the amines of the bicyclo heptane series some amino alcohols and amines of this series were synthesized, which were then pharmacologically investigated in the form of their hydrochlorides and iodine alkylates. It was interesting to investigate in which way the physiological activity, especially the hypotensive effect might change in compounds with the amino group in position 3 and with the same carbon skeleton as that to be found in bicyclo (1,2,2) heptane, if in the position 3 an oxy-alkyl or just one alkyl group were substituted for the acyl radical. To arrange the transformation of the amino ketones of the bicyclo heptane series into the corresponding amino alcohols their reduction with aluminum-lithium hydride ($LiAlH_4$) was carried out (Scheme 1). This reduction takes place very easily. The yields of the corresponding amino alcohols (I), (II), and (III) unknown before were almost quantitative. Thus 2,1-oxy-alkyl-3-dialkyl aminobicyclo (1,2,2) heptane was synthesized by reduction of_2-acyl-3-dialkyl bicyclo (1,2,2) heptane with $LiAlH_4$. 2—alkyl-3-dialkyl amino bicyclo (1,2,2) heptanes were obtained in two ways: 1) By treating 2-acyl-3-dialkyl amino bicyclo (1,2,2) heptane with phosphorous pentachloride, by further reduction of the intermediate products with zinc dust, and by hydrogenation. 2) By treating 2,1'-oxy-alkyl-3-dialkyl-aminobicyclo (1,2,2) heptane with thionyl

Derivatives of Bicyclo (1,2,2)Heptane. IV. Some Amines SOV/79-28-12-41/41
and Amino Alcohols of the Bicyclo (1,2,2) Heptane Series

chloride and with subsequent hydrogenation. The problem of the dependence of physiological activity on the structure of the amino derivatives of bicyclo (1,2,2) heptane is discussed. There are 4 references, 2 of which are Soviet.

ASSOCIATION: Institut farmakologii i khimioterapii Akademii meditsinskikh nauk SSSR (Institute of Pharmacology and Chemotherapy of the Academy of Medical Sciences, USSR)

SUBMITTED: September 30, 1957

Card 3/3

SOV/79-29-1-17/74

AUTHORS: Kochetkov, N. K., Khorlin, A. Ya., Lopatina, K. I.

TITLE: Derivatives of Bicyclo-(1,2,2)-Heptane (Proizvodnyye bitsiklo (1,2,2) geptana) V. 3-Amino Isocamphane and Related Compounds (V. 3-Aminoizokamfan i rodstvennyye soyedineniya)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 75-81 (USSR)

ABSTRACT: The authors worked out in detail the synthesis of the product 3-methyl-amino isocamphane which was recently found to be highly active (Ref 1) in order to obtain new knowledge concerning the relation between the structure of the ganglion-blocking and hypotensive properties of a series of amino derivatives of bicyclo-(1,2,2)-heptane (Ref 3). For this purpose they synthesized several other N-substituted 3-amino isocamphanes. Only brief descriptions of the synthesis of 3-methyl-amino isocamphane by reaction of camphane with the poisonous hydrocyanic acid have hitherto been published. As found in this connection the described reaction takes place in two directions at +5° (Scheme 1). At -20 up to -15° it proceeds in one direction (Scheme 2) in which case the yield in 3-formamide isocamphane amounted to more than 70%. In order to avoid

Card 1/2

SOV/79-29-1-17/74

Derivatives of Bicyclo-(1,2,2)-Heptane. V. 3-Amino Isocamphane and Related Compounds

the highly-poisonous hydrocyanic acid new methods of synthesis of the acyl derivatives of 3-amino isocamphane were investigated according to Ritter, ~~as~~ above mentioned (Refs 5, 6). According to Wagner it was possible to substitute hydrocyanic acid by aceto- and benzonitrile at low temperatures of up to -50°. In the condensation of camphene with dichloro- and trichloro-acetonitrile in the presence of concentrated sulfuric acid it was possible for the authors to obtain already at 0° the compounds (III, R=$CHCl_2$) and (III, R=CCl_3) which lead in the reaction to the compound (III), with R=CH_3 (Scheme 3); in this case the regrouping according to Wagner was not necessary. The acyl derivatives (I,III,IV) of 3-amino camphane were used as initial products for the synthesis of secondary amines of this series. The yields of the compounds thus obtained (V), (VI), and (VII) were very high. The results of the physiological investigations of the above compounds together with 3-amino isocamphane are mentioned in the table which shows the dependence of the ganglion-blocking effect of the structure in the series of amino derivatives of isocamphane. There are 1 table and 8 references, 2 of which are Soviet.

Card 2/2

Sci Res Inst. for Pharmacology & Chemotherapy