"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

AUTHOR: Aronovich, M. A. SOV/2-58-11-11/18

TITLE: On the Application of Mathematical Methods Abroad in Investigating Economic Problems (O primenenii za rubezhom matematicheskikh priyemov issledovaniya ekonomicheskikh problem)

PERIODICAL: Vestnik statistiki, 1958, Nr 11, pp 65-71 (USSR)

ABSTRACT: The article refers to the growing tendency in the US and Great Britain to deal in national economy with subjects such as operation research, linear programming, the decision theory, management science etc. The application of these theories and methods under Soviet conditions can be accomplished only if preparatory scientific research work is done. There are 7 references, 3 of which are Soviet, 3 American and 1 British.

Card 1/1

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ARONOVICH, M.A., dots., kand. ekon. nauk

Linear programming abroad. Vest.mash. 38 no.10:74-76 O '58.
(Industrial management--Graphic methods) (MIRA 11:11)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M.A.

Machinery plants of the future. Mashinostroitel' no.5:43-44 My '63. (MIRA 16:7)

(Machinery industry)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M. S.

PROCESSES AND PROPERTIES INDEX

Mechanical properties of commercially pure iron (Armco type). M. Aronovich. *Stal* 4, No. 1, 74-7 (1934). —Specimens of the iron (cf. preceding abstr.) were tested in the as-rolled, normalized, quenched and quenched and drawn conditions. As rolled the specimens had a proportional limit of 17.9-22.3, yield point 18.4-24.4, ultimate strength 31.1-33.0 kg. per sq. mm., elongation 28.8-38.7%, reduction of area 69.0-82.9%, and a resistance on the Charpy test of 10.0-10.0 kg. m. per sq. cm.

H. W. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Ca

ARONOVICH, M. [S]

9

Properties of Bessemer steel prepared by Tochinskii's method. M. Aronovich. *Stal'* 4, No. 8, 70-91(1934).—Compared to ordinary Bessemer steel, the steels prepd. by Tochinskii's method (cf. preceding abstract) had a slightly decreased tensile strength and greatly increased elongation, reduction of area and impact resistance. Av. slag inclusions were 0.0150%. H. W. Rathmann

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M. S.

9

Quenching wheel tires in oil. M. Aronovich and A. Butkov. *Stal* 4, No. 9-10, 45-51(1944).—Wheel tires immediately after rolling were (a) given a limited quench (40-70 sec.) in hot water and drawn (540-80°) or (b) quenched in oil and drawn. The macro- and micro-structure of tires quenched in oil were slightly more homogeneous than those quenched in water. Impact resistance was higher in the water-quenched tires; other mech properties were approx. the same. H. W. Rathmann

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

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ARONOVICH, M. S.

CA

9

Determination of nonmetallic inclusions in steel with a microscope. M. S. Aronovich and I. M. Lyubarskii. *Metallurg* 11, No. 9, 89-95(1936). The quantity was computed from the area in cross section occupied by inclusions. The results were 32 to 58% higher than those obtained by electrolytic analysis. H. W. Rathmann

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ARONOVICH, M. S.

C 11

9

Determination of nonmetallic inclusions in sheet metal and metal strips. M. Aronovich and E. Flamova. *Metallurg* 13, No. 5, 6-12(1938); *Chem. Zentr.* 1938, II, 1121. The method previously described (cf. C. A. 31, 7017[9]) can be extended to metal plates as well as bands and beams of irregular outline. The formula applied reads: $Q = I.100/(S\ d)$ in which Q is the nonmetallic inclusions in wt.-%; d is the ratio of the sp. gr. of the Fe to that of the inclusions and is approx. congruent to 3; I and S are the index and the field of view of the microscope, both expressed in scale divisions. M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M.S., kandidat tekhnicheskikh nauk, redaktor.

[Properties and heat treatment of metal for use in transportation] Svoistva i termicheskaia obrabotka transportnogo metalla. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1947. 323 p. (MLRA 7:4)

1. Sibirskiy metallurgicheskiy institut imeni Sergo Ordzhonikidze. (Steel--Metallurgy) (Railroads--Rails)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M. S.

Osnovy metallovedeniia termicheskoi obrabotki (Fundamentals of metal study and heat treatment). Moskva, Metallurgizdat, 1952, 415 p.

SO: Monthly List of Russian Accessions, Vol 6, No. 3, June 1953

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

1. ARONOVICH, M.S.; UVAROV, V.V.

2. USSR (600)

4. Steam Boilers

7. Damage to pipes of passage area in uniflow boiler. Izv. VTI 21 no.9, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M.S.

UVAROV, Vladimir Vasil'yevich; SHNURKOV, Mikhail Yefimovich; LAPITSKAYA, Yeva Markovna; SUROVTSEVA, Yevgeniya Dmitriyevna; LADITSKIY, V.P., kandidat tekhnicheskikh nauk, retsenzent; ARONOVICH, M.S., kandidat tekhnicheskikh nauk, redaktor; MODEL', B.I., tekhnicheskiy redaktor

[The production of the principal boiler elements] Proizvodstvo osnovnykh elementov kotloagregatov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 315 p. (MLRA 9:7)
(Boilers)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

SHIFRIN, Mikhail Yul'yevich; SOLOMOVICH, Moisey Yakovlevich; ARONOVICH, M.S., redaktor; GOLYATKINA, A.G., redaktor; MIKHAYLOVA, V.V., tekhnicheskiy redaktor

[The production of seamless rolled wheels and bands] Proizvodstvo tsel'nokatanykh koles i bandazhei. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 500 p. (MLRA 8:3)
(Car wheels)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

GURA, P.M., kand.tekhn.nauk; KONTOROVSKIY, A.Z., kand.tekhn.nauk; LAGUNTSOV, I.N., kand.tekhn.nauk; RATNER, A.V., kand.tekhn.nauk; MIKHAYLOVA, T.A., inzh.; AROKOVICH, M.S., kand.tekhn.nauk, red.; KORIKOVSKIY, I.K., red.; LARIONOV, G.Ye., tekhn.red.

[Metal in modern power units] Metall v sovremennykh energoustanovkakh. Moskva, Gos. energ. izd-vo 1958. 75 p. (MIRA 12:2)

1. Gosudarstvennyy trest po organizatsii i ratsionalizatsii elektrostantsiy, trust, Moscow.
(Boilers) (Pipe, Steel--Corrosion) (Steel--Testing)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ODING, I.A.; ARONOVICH, M.S.

"Steels and alloys for work at high temperatures" by M.L. Bernshtein. Reviewed by I.A. Oding, M.S. Aronovich. Metalloved i obr. met. no.2: 56-57 F '58. (MIRA 11:2)

(Heat-resistant alloys)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

25(6)
28(1)

S/028/60/000/03/008/029
D041/D006

AUTHORS: Aronovich, M.S., and Tsukublin, A.S.

TITLE: New Numerical Designation for Iron and Steel Grades

PERIODICAL: Standartizatsiya, 1960, Nr 3, pp 22-31 (USSR)

ABSTRACT: To replace the existing cumbersome designations, the Vsesoyuznyy nauchno-issledovatel'skiy institut normalizatsii v mashinostroyenii - VNIINMASh (All-Union Scientific Research Institute of Standardization in Machine Building) has developed a new designation system, in which the different metal grades are expressed by figures, based on the same principles as those used in the US, Sweden, West Germany, etc. A similar system has been introduced recently in Czechoslovakia and has been approved by all metallurgical and machine building enterprises. It is mentioned that, from 1945 to 1948, G.V. and K.I. Akimov recommended a four-sign numerical

Card 1/2

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S/028/60/000/03/008/029
D041/D006

New Numerical Designation for Iron and Steel Grades

system for designating the grades of metal materials in the Soviet machine building industry. This suggestion, however, did not receive any support. The principles of the system are explained in detail and illustrated by tables. There are 4 tables, and 1 chart.

Card 2/2

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

S/028/60/000/010/004/020
B013/B063

AUTHORS: Andronov, N. I., Aronovich, M. S., Tsukublin, A. S.

TITLE: Numerical System for Ferrous Metals

PERIODICAL: Standartizatsiya, 1960, No. 10, pp. 18 - 24

TEXT: This is a report on a new system developed at the VNIINMASh for the designation of ferrous metals by figures. The designation is composed of four figures. The general classification is based on the composition of chemical elements and on general characteristics of classification. In the first case, some important properties of ferrous metals are considered, while the characteristics of the second case are closely related to their practical application. Ferrous metals are designated according to the following scheme: a) The first figure refers to the groups of ferrous metals and their alloys (Table 1). The second figure refers to the pertinent subgroup established according to the principal alloying elements (Table 2). The principal alloying element is that which predominates in the alloy. With equal content of several alloying elements the principal element is that which either influences the properties of the

Card 1/2

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Numerical System for Ferrous Metals

S/028/60/000/010/004/020
B013/B063

alloy or is deficient. In some cases, the principal element is that which determines the properties of the alloy even though its content in the melt is lower than that of other elements. The third and fourth figure together illustrate the specific features of metals and alloys, and an additional alloying. In the group of light alloys, casting alloys are indicated by even numbers and workable alloys by odd numbers. Each of the subgroups indicated by the second figure (Table 2) contains 100 ordinal numbers (00 - 99). These are divided into various groups covering all alloys characterized by the second alloying element and by the elements of additional alloying. The size of these groups depends on the number of types. Finally, a brief explanation of the new system is given: aluminum and its alloys (Tables 1,2,3,4); copper and its alloys (Tables 1,2,5,6); difficultly meltable metals and their alloys (nickel) (Tables 1,2,7); easily meltable metals and their alloys (lead) (Tables 1,2,8,9); noble metals (Tables 1,2); platinum (Table 10). There are 10 tables.

Card 2/2

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ANTIKAYN, Petr Andreyevich; ARONOVICH, Mark Savvich; BAKLOSTOV, Arseniy Mikhaylovich. Prinimal uchastiye KRUGLYY, S.M.; NITSKEVICH, Ye.A., red.; LARIONOV, G.Ye., tekhn. red.

[Recuperative heat-exchange apparatus] Rekuperativnye teploobmennye apparaty. Moskva, Gosenergoizdat, 1962. 231 p. (MIRA 15:7)

(Heat exchangers)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ODING, Ivan Avgustovich; MARKOVETS, M.P., doktor tekhn. nauk, prof., retsenzent; ARONOVICH, M.S., kand.tekhn.nauk, red.; MERENSKAYA, I.Ya., red. izd-va; UVAROVA, A.F., tekhn. red.

[Permissible stresses in the manufacture of machinery and cyclic strength of metals] Dopuskaemye napriazheniia v mashinostroenii i tsiklicheskaia prochnost' metallov. Izd.4. ispr.i dop. Moskva, Mashgiz, 1962. 259 p. (MIRA 15:7)

1. Chlen-korrespondent Akademii nauk SSSR (for Oding).
(Strength of materials) (Machinery—Construction)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, M.S., kand. tekhn. nauk; ANTIKAYN, P.A., kand. tekhn. nauk

Experience in using steampipes from 12MKh steel with welded joints not undergone heat treatment. Elek. sta. 36 no.2:21-23 F '65. (MIRA 18:4)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

RATNER, Abram Vladimirovich; ARONOVICH, M.S.,

[Steam pipe fittings for supercritical parameters] Armatura dlia para sverkhkriticheskikh parametrov. Moskva, Energiia, 1965. 255 p. (MIRA 18:2)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

VECHER, N.A.; UMRIKHIN, P.V.; PANFILOV, M.I.; PASTUKHOV, A.I.; TSEKHANSKIY, M.I.; ARONOVICH, M.S.; POSYSAYEV, A.A., inzh.; GARCHENKO, V.T.; ORMAN, M.Ye.

Review of D.A.Smoliarenko's book "Quality of carbon steel." Stal' 23 no.9:800-804 S '63. (MIRA 16:10)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, O.A.

Episodic psychoses with a schizophrenialike picture in children following tuberculous meningitis. Zhur. nevr. i psikh. 65 no.7:1093-1096 '65. (MIRA 18:7)

1. Litovskaya respublikanskaya N.Vil'nyaskaya prikhonevrologicheskaya bol'nitsa (glavnyy vrach I.N.Glyauberzonas).

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ARONOVICH, P.M.

BC

B-II-1

PROCESSES AND PROPERTIES INDEX

Preparation of diphenylthiocarbamide. V. I. Kuznetsov and P. M. Aronovitsch (J. Chem. Ind. Russ., 1938, 15, 963—964).—$CS(NHPh)_2$ is obtained in 99% yield from CS_2, NH_2Ph, and aq. NaOH when the reaction temp. is 80°. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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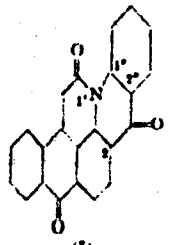
CA

ARONOVICH, P.M.

10

Polycyclic compounds. I. The synthesis of anthrapyridoneacridone. A. M. Lukin and P. M. Aronovich. *J. Gen. Chem.* (U. S. S. R.) 9, 1774-6(1939).—When 1-anilino-2-carboxyanthraquinone is acetylated and the deriv. is boiled for 10 hrs. with 0.8% NaOH, it gives 94% *1-(N)-9-anthrapyridone-(N)-phenyl-2-carboxylic acid*, decomps. above 300°. When this is treated with $ClSO_3H$ or H_2SO_4, it gives 97% *1(N)-9-anthrapyridone-1',1''-phenylene-3,2''-ketone* (I), m. above 300°. This is the first example of a compd. contg. both the anthrapyridone and the acridone rings. It is a yellow dye.



(I)

H. M. Leicester

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, P.M.

Polycyclic compounds. IX. Synthesis of methyl- and benzanthrapyridonacridones. A. M. Lukin and P. M. Aronovich (Acad. Sci., U.S.S.R.). *J. Gen. Chem. U.S.S.R.* 19, 319-22(1949)(Engl. translation). **X. Action of alkali on anthrapyridonacridones.** *Ibid.* 323-8. —See *C.A.* 44 10704. R. J. C.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, P. M.

"Research in the field of polycyclic compounds: X. The interaction of anthrapyridene-acridones with alkali".
Lukin, A. M. and Aronovich, P. M. (p. 362)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1949, Vol. 19, No. 2

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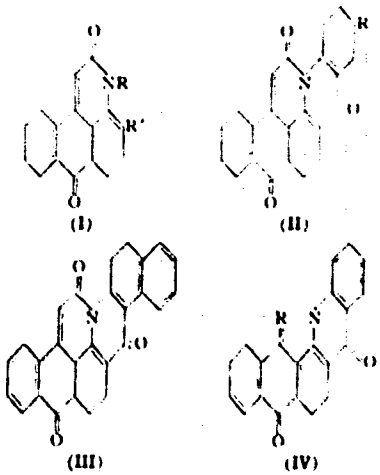
"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, P.M.

CA

10

Polycyclic compounds. XIII. Absorption spectra of anthrapyridoneacridone, anthraquinoneacridone, anthrapyridone, and some of their derivatives. A. M. Lukin, P. M. Aronovich, and G. P. Brin. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 2219-21(1950); cf. *C.A.* 34, 3749[1]; 44, 1079h; 45, 2460c.—Treatment of 0.74 g. *N-phenyl-1(N),9-anthrapyridone-3-carboxylic acid* (I, R = Ph, R' = CO_2H) and 0.17 g. $NaHCO_3$ in 50 ml. H_2O with 0.34 g. $AgNO_3$ gave a yellow-green *Ag salt*, which, dried and boiled 1.5 hrs. with 3 ml. MeI, yielded the *Me ester* (I, R = Ph, R' = CO_2Me), m. 243-3.5° (from MeOH and 50% AcOH). Absorption spectra of this and related compds. are reproduced and are characterized as follows: Anthrapyridone-



(I) (II) (III) (IV)

acridone (II, R = H) gives max. at 330 and 270 mμ; anthrapyridone-5'-methylacridone (II, R = Me) at 340 and 380 mμ; anthrapyridone-5',6'-benzacridone (III) has a min. at about 380 and weak max. at 500 mμ; anthrone-2,1(*N*)-acridone-9-methylenecarboxylic acid (IV, R = :$CHCO_2H$) and anthraquinone-2,1(*N*)-acridone (IV, R = O) have max. at 365-70 mμ, thus confirming the structure of the former; *N*-methyl-1(*N*),9-anthrapyridone (I, R = Me, R' = H) has max. at 340 mμ and 400 mμ, while the above Me ester has max. at 310 and 405 mμ. The detns. were made in 94% H_2SO_4. G. M. Kosolapoff

1957

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

ARONOVICH, P. M.

USSR/Chemistry - Boron organic compounds

Card 1/1 Pub. 22 - 25/47

Authors : Mikhaylov, B. M., and Aronovich, P. M.

Title : Complex boron-organic compounds. Diisobutoxydiphenylboronlithium and triisobutoxyphenylboronlithium.

Periodical : Dok. AN SSSR 98/5, 791-794, Oct 11, 1954

Abstract : The reaction of phenyl lithium (PhLi) with diisobutyl phenylborate and triisobutyl borate, was investigated for the purpose of obtaining complex B-organic compounds. Two component compounds, formed during the reaction of PhLi with diisobutyl phenylborate, were analyzed. The entire reaction process, and the results obtained, are described in detail. Fourteen references: 6-German; 5-USA; 2-USSR and 1-French (1862-1953).

Institution : Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Organic Chemistry

Presented by : Academician B. A. Kazankskiy, May 27, 1954

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ARONOVICH P.M.

3

Preparation of o-terphenyl. B. M. Mikhailov and P. M. Aronovich. Bull. Acad. Sci. U.S.S.R., Div. Chem. S. 1955, 657-8 (Engl. translation) —See C.A. 50, 4080g.

2

B. M. R.

PM

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

Organoboron compounds. III. Preparation of iso butyl esters of propylphenylbo ic and butylphenylbo acids. [illegible] M. Mikhailov and [illegible] M. Aronovich. Bull. Acad. Sci. U.S.S.R., Div. Chem. [illegible] (Engl. translation). See C.A. 50, [illegible]. B. M. R.

PM

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

MIKHAYLOV, B.M.; ARONOVICH, P.M.

Preparation of p -terphenyl. Izv.AN SSSR.Otd.khim.nauk no.5:945-946 S-O '55. (MLRA 9:1)

1.Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR.

(Terphenyl)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

Ivanovich, M.

7

Organoboron compounds. III. Preparation of isobutyl esters of propylphenylbutyl and butylphenylbutyl acids.

[illegible]

[illegible] in 80-7°, d_{20} 0.8943. Similarly was [illegible] 67.4% $BuPhBOCH_2CHMe_2$ in 60-7°, d_{20} 0.8894

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ARONOVIC, P.M.

6

Organoboron compounds. V. Preparation of isobutyl esters of phenylboric acid and diphenylboric acid with the aid of phenyllithium. B. M. Mikhailov and P. M. Aronovich (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1956, 822-6; cf. C.A. 50, 4813d, 11235c.—To (iso-BuO)$_2$BPhLi (6.28 g.) in 10 ml. H_2O was added 3 ml. 30% HCl and the mixt. repeatedly extd. with Et_2O, the ext. concd. and distd. with added H_2O to remove iso-BuOH, to yield on cooling 90% phenylboric acid, m. 207-10°, the aq. soln. was made alk. and concd., yielding after addn. of 20 ml. MeOH, careful neutralization and addn. of 2 g. $HgCl_2$, 7.8 g. boric acid as detd. by titration after addn. of mannitol. To PhLi soln. at −5° (from 17.3 g. PhBr, 1.6 g. Li, and 175 ml. Et_2O) was added 23 g. $B(OCH_2CHMe_2)_3$ in Et_2O with cooling finally to −50°; after 5 hrs. at −70° the mixt. was left in cold bath overnight and was then acidified with 20% HCl and extd. with Et_2O; the ext. was evapd., treated with H_2O and distd. to remove iso-BuOH, yielding 82% $PhB(OH)_2$. Similar reaction in which the reaction mass was satd. with dry HCl gave after filtration and distn. 68% (*iso-BuO*)$_2$*BPh*, b_5 116-17°, d_{20} 0.9243. To 77 ml. 1.3 N BuLi in C_6H_6 in N atm. was added with ice cooling 11.5 ml. dry iso-BuOH and after cooling with ice the soln. of iso-BuLi was treated with 26.2 g. iso-BuOBPh$_2$ in 50 ml. Et_2O; after 3 hrs. at 0° the mixt. was concd. *in vacuo* in N stream and the residue [illegible] with hexane gave 78% *Ph*$_2$*B*(*OBu-iso*)$_2$*Li* (I). The 216.9 g. in 50 ml. Et_2O was treated with cooling with 20% HCl to acid reaction; the org. layer after evapn. was treated with isopentane, yielding 3.2 g. $PhB(OH)_2$ while the filtrate gave 27.8% iso-BuOBPh$_2$, b_5 14[illegible]. I in Et_2O treated 1 hr. with dry HCl gave 81.7% iso-BuOBPh$_2$ and 4.0% (iso-BuO)$_2$BPh. To Et_2O soln. of PhLi from 17.3 g. PhBr and 1.6 g. Li was added 23.4 g. (iso-BuO)$_2$BPh as above; after acidification with 20% HCl and distn. of

1/3

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Mikhailov, B.N.; Aronovich, P.M.

BuO and iso-BuOH, the residue was fractionated yielding some Ph_3, 20.1% iso-BuOBPh$_2$ and 2.9 g. (iso-BuO)$_2$BPh. Reaction of equimolar mixt. of (iso-BuO)$_2$BPh and PhLi as above followed by passage of dry HCl into the mixture, distn. of BuO, filtration of LiCl, washing with C_6H_6, distn. of C_6H_6 and iso-BuOH, and fractionation of the residue gave 6.6% (iso-BuO)$_2$BPh and 71% iso-BuOBPh$_2$. VI. Action of phosphorus pentachloride on esters of diarylboric acids. Synthesis of diarylboron chlorides. B. M. Mikhailov and N. S. Fedotov. *Ibid.* 375-6.—To 20 g. Ph_2BOPr was added 16.6 g. PCl_5 (exothermic) and after distn. of PrCl and $POCl_3$, there was obtained 12.4 g. *Ph_2BCl*, b_9 119-20°, d_{20} 1.1037. Similarly 20 g. iso-BuOB($C_{10}H_7$-1)$_2$ in 20 ml. C_6H_6 with 12.3 g. PCl_5 gave 12.6 g. *(1-$C_{10}H_7$)$_2$BCl*, $b_{1.5}$ 213-18°, in 70% yield. VII. Action of phosphorus pentachloride on esters of arylboric acids. Synthesis of esters of arylchloroboric acids. B. M. Mikhailov and T. V. Kostroma. *Ibid.* 376-7.—To 44.8 g. PhB(OBu)$_2$ was added 41.7 g. PCl_5 and after cessation of exothermic reaction the mixt. was distd., yielding BuCl, $POCl_3$, and 29.5 g. *PhB(OBu)Cl*, b_9 104-5°, d_{20} 0.9962, in 76% yield. Similarly 24.8 g. *(iso-BuO)$_2$BC$_6$H$_4$Me-o* and 20.8 g. PCl_5 gave 18.1 g. *Cl(iso-BuO)BC$_6$H$_4$Me-o*, b_{10} 114-15°, b_9 110-11°, d_{20} 0.9918, in 86% yield. VIII. Synthesis and properties of diarylboric acids. B. M. [illegible] and V. A. Vavrn. *Ibid.* 451-6.—To 0.5 mole [illegible]

[illegible]

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[illegible] above acid (1 g.) refluxed 2 hrs. with 5 ml. $SOCl_2$, concd. in vacuo and treated with C_6H_6-petr. ether, gave 98% $[(1\text{-}C_{10}H_7)_2B]_2O$, m. 190-2°. To 0.65 mole p-BrC_6H_4MgBr (cf. Pink, *C.A.* 18, 669) was added over 0.5 hr. at −30° 0.25 mole $(iso\text{-}BuO)_3B$ in Et_2O and after 2 hrs. at −70° the mixt. was treated with 5% HCl, the org. layer concd. and the residue esterified with iso-BuOH; distn. gave 39% $(p\text{-}BrC_6H_4)_2BOBu\text{-}iso$, (II) b_1 161-3°, and 37% $p\text{-}BrC_6H_4B(OBu\text{-}iso)_2$, b_1 10[illegible]-10°, d_{20} 1.1583. II (2.25 g.) shaken with 5 ml. 30% NH_4OH gave 87.3% $(p\text{-}BrC_6H_4)_2B(OH)_2NH_4$, m. 134-5° (from C_6H_6). II (1.23 g.) in 3.65 ml. 0.8*N* KOH was slowly distd. *in vacuo* at 70° under N giving a residue of 0.8 g. $(p\text{-}BrC_6H_4)_2B(OH)_2K$, crystals (from C_6H_6-MeOH). The NH_4 salt above with dil. HCl gave 86% $(p\text{-}BrC_6H_4)_2BOH$, m. 90-1° (from petr. ether), which forms similarly from the above K salt. Similarly, 0.6 mole p-ClC_6H_4MgBr and 0.25 mole $(iso\text{-}BuO)_3B$ gave 40% $(p\text{-}ClC_6H_4)_2BOBu\text{-}iso$, (III), b_1 134-5°, d_{20} 1.1414, and 28% $p\text{-}ClC_6H_4B(OBu\text{-}iso)_2$, b_1 93-5°, d_{20} 1.0051; the former is rapidly oxidized in air, the latter is immediately hydrolyzed in moist air. III shaken with satd. $Ba(OH)_2$ gave 89.5% $(p\text{-}ClC_6H_4)_2B(OH)_2Ba$, insol. in H_2O, sol. in MeOH and EtOH. Shaken with 1:4 HCl it gave $(p\text{-}ClC_6H_4)_2B(OH)_2$, m. 76-8° (from aq. EtOH); it is decompd. by drying *in vacuo*, yielding PhCl and p-$ClC_6H_4B(OH)_2$. III with *N* NaOH gave $(p\text{-}ClC_6H_4)_2B(OH)_2Na$, which on acidification gave an acid, m. 70-3°, corresponding to $(p\text{-}ClC_6H_4)_2BOH.H_2O$. Cf. König and Scharrnbeck (*C.A.* 25, 927); Mel'nikov and Rokitskaya (*C.A.* 33, 4969).

G. M. Kosolapoff

3/2

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[illegible] of active nitrogen in organic compounds. II. [illegible] and B. M. Mikhailov. [illegible] Div. Chem. Sci. 1956, 707-12 (English translation) [illegible] C.A. 51, 1893b. B. M. R.

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Aronovich, P. M.

USSR/Organic Chemistry. Synthetic Organic Chemistry E-2

Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26676

Author : Aronovich, P.M.; Bel'skiy, N.K., Mihaylov, B.M.

Inst : Academy of Sciences of USSR.

Title : Action of Active Nitrogen on Organic Substances.

Orig Pub : Izv AN SSSR, Otd. khim. n., 1956, No. 5, 544 - 549.

Abstract : I. Cyclohexene, n-hexane, cyclohexane, C_6H_6, cyclohexanone (I), CH_3COOH, n-butyl esther of oleic acid, ni-n-butyl ester of phthalic acid, oleic acid (II) and stearic acid (III) interact with active nitrogen at a speed decreasing in the above order and produce HCN and traces of dicyanogen. At the interaction with unsaturated and aromatic compounds, solid substances

Card 1/4

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

Abs Jour : Ref Zhur - Khimiya, No. 8, 1956, 26676.

are deposited on the walls of the vessel; these substances contain 16 to 26% of N and produce NH_3 at alkaline hydrolysis. Cyanohydrin is produced with I. The organic products of reactions of nitrogen with other substances are not identified. A small amount of III is produced from II. Nitrogen, dried and freed of O_2, is passed through a discharge tube at 2100 to 2500 v, 140 to 180 ma and under the pressure of 10 to 15 mm. The luminescent gas coming out of the tube passes through a test tube with the liquid under investigation, or in case of work with gaseous substances, is mixed with them in a tube of 2.5 cm in diameter or in a globe of 12 cm in diameter. The duration of the experiment is 5 to 7 hours daily, the total duration being

Card 2/4

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

Abs Jour : Ref Zhur - Khimiya, No. 8, 1956, 26676.

10 to 50 hours. HCN in the amount of 1.6 mg per hour is forming from melted III at 70°, 7.7 mg of HCN per hour is forming from II at the same temperature, and 1.7 mg of it per hour is forming at about 20°.

II. The presence of pyridine (IV), phenylisonitrile (V), benzonitrile (VI) and, probably, dinitrile of terephthalic acid among the products of the reaction of active nitrogen with C_6H_6 was proved. At the action of IV on naphthalene (VII), quinoline and isoquinoline are produced together with other products. The absence of amines was proved in both cases. The following reaction mechanism was surmised:

$$C_6H_6 + N \rightarrow C_6H_5 + NH; \quad C_6H_5 + N \rightarrow C_5H_5 + CN;$$

Card 3/4

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ARONOVICH, P. M.

MIKHAYLOV, B.M.; ARONOVICH, P.M.

Boron organic compounds. Report No.20: N-substituted of phenyldiamino-boron and B-phenylborazoles. Izv. AN SSSR. Otd. khim. nauk no.9:1123-1125 S '57. (MIRA 10:12)

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

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ARONOVICH, P. M.

AUTHORS: Nikitina, A. N., Galanin, M. D., Aronovich, P. M., Shchegoleva, T. A., Mikhaylov, B. M., 48-1-2/20

TITLE: An Investigation of Boron Organic Compounds Containing Scintillators (Issledovaniye stsintillyatorov, soderzhashchikh bororganicheskiye soyedineniya)

PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1958, Vol. 22, Nr 1, pp. 12-13 (USSR)

ABSTRACT: The authors investigated a number of organoboron compounds (some of them were for the first time obtained in reference 3) for the purpose of determining the possibility of using them for the recording of slow neutrons. The esters of alkyk- and dialkyl boric acid were investigated on their introduction into a liquid scintillator - a p-terphenyl-solution. It became evident that the intensity of the γ-scintillation of the latter does almost not change. Trimethylborate used in the practice of nuclear physics weakens the γ luminescence of the p-terphenyl-solution by 30%. It is shown that the esters of aryl- and diarylboric acid on their introduction into a p-terphenyl-solution cause a considerable weakening of the scintillation of the latter (50-90%). The organoboron compounds with aryl-substituents themselves possess a weak γ-luminescence.

~~Card 1/2~~

Inst. Organic Chem im Zelinskiy AS USSR; Inst. for Physics im P.N. Lebedev AS USSR

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ARONOVICH, P.M.

NIKITINA, A.N.; SALANIN, M.D.; ARONOVICH, P.M.; SHCHEGOLEVA, T.A.; MIKHAYLOV, B.M.

Analysis of scintillators containing boron organic compounds. Izv. AN SSSR. Ser. fiz. 22 no.1:14-20 Ja '58. (MIRA 11:2)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i Fizicheskiy institut im. P.N. Lebedeva AN SSSR.
(Scintillation counters)
(Nuclear physics--Instruments)

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5(3)

AUTHORS: Mikhaylov, B. M., Aronovich, P. M.

SOV/79-29-4-48/77

TITLE: Organo-boron Compounds (Bororganicheskiye soyedineniya). XXXIV. Alkylphenylboron Chlorides (Alkilfenilborkhloridy)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1254-1257 (USSR)

ABSTRACT: The authors continued their work in the field of the synthesis of organo-boron compounds of the fatty aromatic series (Ref 1) and synthesized, during the work discussed in this article, the isobutyl ester of ethylphenyl boric acid (II) by transformation of lithium ethylate with phenyl boric acid:

$$C_6H_5B(OC_4H_9)_2 + C_2H_5Li \rightarrow \left[\begin{matrix} C_6H_5 \\ C_2H_5 \end{matrix}\!\!>B(OC_4H_9)_2\right] Li \longrightarrow$$

(I)

$$\begin{matrix} C_6H_5 \\ C_2H_5 \end{matrix}\!\!>BOC_4H_9 \quad (II)$$

Card 1/3

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It was shown that the ethylphenyl di-isobutoxyboreniate of lithium (I), which forms in the first stage, decomposes not only with HCl but also with diluted hydrochloric acid. Such a simplification is also possible in the synthesis of the esters of n-propylphenyl- and n-butylphenyl boric acid, since the lithiumalkylphenyl di-isobutoxyboreniates, in contrast with the diphenyl di-isobutoxyboreniates of lithium (Ref 3), decompose in one direction only with diluted hydrochloric acid, while the esters of alkylphenyl boric acids are formed simultaneously. The isobutyl esters of alkylphenyl boric acids are equally stable in the hydrolysis as the alkyl esters of dialkyl- and diaryl boric acids (Refs 4,5,6). By reaction with PCl_5 the alkylphenylborates change into alkylphenyl boron chlorides (76-83% yield). The reaction follows the scheme:

$$\begin{matrix} R \\ C_6H_5 \end{matrix}\!\!>BOC_4H_9 + PCl_5 \rightarrow \begin{matrix} R \\ C_6H_5 \end{matrix}\!\!>BCl + POCl_3 + \text{iso-}C_4H_9Cl$$

Card 2/3

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Organo-boron Compounds. XXXIV. Alkylphenylboron Chlorides SOV/79-29-4-48/77

In this way the methylphenyl-, ethylphenyl-, n-propylphenyl-, and n-butylphenyl boron chlorides were prepared. There are 1 table and 8 references, 6 of which are Soviet.

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

SUBMITTED: February 24, 1958

Card 3/3

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5(3)

AUTHORS: Mikhaylov, B. M., Aronovich, P. M. SOV/79-29-4-49/77

TITLE: Organo-boron Compounds (Bororganicheskiye soyedineniya). XXXV. Alkylphenyl Boric Acids and Their Anhydrides (XXXV. Alkilfenilbornyye kisloty i ikh angidridy)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1257-1262 (USSR)

ABSTRACT: With the exception of a paper published by K. Torssell (Ref 1), in which the reaction conditions and constants of the synthesized product were not given, alkylphenyl boric acids have so far not been described. As has been reported (Ref 2), the authors did not succeed in realizing the hydrolysis of the isobutyl esters of alkylphenyl boric acids. During a further attempt to obtain alkylphenyl boric acids through the influence of water on alkylphenyl boron chlorides (Ref 2) it was found that the nature of the alkyl radical exerts a great influence on the behavior of these chlorides with respect to water. When reacting with water ethylphenyl boron chloride does not form, as expected, ethylphenyl boric acid but only ethyl boric acid. Among the further negative cases only n-butylphenyl

Card 1/2 ~~1/3~~

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

Organo-boron Compounds. XXXV. Alkylphenyl Boric Acids and Their Anhydrides SOV/79-29-4-49/77

boron chloride reacts normally with water, and the corresponding acid is formed. The hydrolysis mechanism of alkylphenyl boron chlorides is apparently connected with the processes of a complex formation, as usually observed in boron compounds [Schemes (1), (2), and (3)]. Compound (I) first affiliates the water molecule and forms the complex compound (II) which splits off HCl and thus changes into (III). In this process (II) splits off benzene, and (IV) is formed. These results of the hydrolysis with water show that benzene can only be prevented from being split off by binding the hydrogen chloride removed in the course of the reaction. Indeed, it was possible to obtain the alkylphenyl boric acids by saponification of the chlorides with an equimolecular amount of alkali lye. When distilled, the methyl-, ethyl-, and n-propylphenyl boric acids split off water and form anhydrides. In this process n-butylphenyl boric acid disproportionates. Thus, by the hydrolysis of alkylphenyl boron chlorides with water a mixture of alkylphenyl- and alkyl boric acid is formed. There are 2 tables and 5 references, 3 of which are Soviet.

Card 2/3

Inst. Org Chem, AS USSR

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5(3)

SOV/79-29-9-67/76

AUTHORS: Mikhaylov, B. M., Aronovich, P. M.

TITLE: Organoboron Compounds. XIV. Reaction of Butyl Esters of Boric Acid and Boronorganic Acids With Aromatic Amines

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3124-3129 (USSR)

ABSTRACT: The present investigation was made to explain the capability of alkoxy groups of the esters of boric acid and their derivatives of being replaced by amino groups. Experiments proved that these esters react with aromatic amines at their boiling point. The reaction takes place under the formation of the corresponding amino derivatives in the following manner:

$$B(OC_4H_9)_3 + 3\ RNH_2 \rightleftharpoons B(NHR)_3 + 3C_4H_9OH$$

$$R'B(OC_4H_9)_2 + 2\ RNH_2 \rightleftharpoons R'B(NHR)_2 + 2C_4H_9OH$$

$$R'_2BOC_4H_9 + RNH_2 \rightleftharpoons R'_2BNHR + C_4H_9OH$$

Herefrom it follows that these are reversible reactions. The transformation of the ester into the amine can only be achieved by eliminating the alcohol from the reactant. The alcoholysis

Card 1/3

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

Organoboron Compounds. XLV. Reaction of Butyl Esters of Boric Acid and Boronorganic Acids With Aromatic Amines

SOV/79-29-9-67/76

of the amino derivatives takes place much more rapidly than the substitution of the amino groups for the alkoxyl as exemplified by the reaction of phenyl di-(phenylamino)-boron $[(C_6H_5B(NHC_6H_5)_2]$. When the alcohol is separated from the reactant by distillation, the above-mentioned reactions take place only if amines are used that have a higher boiling point than the alcohol formed in the reaction. In the present paper the reactions of the isobutyl esters of boric, n-propyl, phenyl, and diphenyl boric acid as well as of the n-butyl esters of n-butyl, and di-n-butyl boric acid with aniline and p-toluidine are described. Hereby only those products were obtained in which all alkoxy groups were fully substituted, which could be explained by stage (I) and (II) of the reaction. The results obtained prove that the substitution rate of the aryl amino groups for the alkoxy groups in the esters of boric, phenyl boric, and diphenyl boric acid is inverse to the rate of hydrolysis of the same esters (Refs 7, 8). The following compounds were synthesized in this way: tri-(p-tolylamino)-boron, phenyl di-(phenylamino)-boron, phenyl di-(p-tolylamino)-boron, n-propyl

Card 2/3

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Organoboron Compounds. XLV. Reaction of Butyl Esters of Boric Acid and Boronorganic Acids With Aromatic Amines

SOV/79-29-9-67/76

di-(phenylamino)-boron, n-butyl di-(phenylamino)-boron, di-phenyl-(phenylamino)-boron, and di-n-butyl-(phenylamino)-boron. The reaction rate of aniline with the esters increases in the series of the esters of boric acid in accordance with the gradation scheme boric acid ester < ester of phenyl boric acid < ester of diphenyl boric acid. There are 2 figures, 1 table, and 12 references, 7 of which are Soviet.

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

SUBMITTED: July 10, 1958

Card 3/3

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S/079/60/030/011/009/026
B001/B066

AUTHORS: Mikhaylov, B. M., Aronovich, P. M., and Tarasova, L. V.

TITLE: Organoboron Compounds. LXIV. Reaction of Esters of Unsaturated Organoboric Acids With Silane Chlorides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 11, pp.3624-3628

TEXT: The authors used the addition reaction of silane chlorides to unsaturated compounds in the presence of platinum hydrochloric acid, which had been developed in the papers of Refs.1-3, and obtained in the present study the esters (II) and (III) by reaction of isobutyl ester of vinyl boric acid (I) with silane trichloride or methyl-silane dichloride in the presence of the above acid:

$$\underset{(I)}{CH_2{=}CHB(OC_4H_9)_2} + HSiCl_3 \longrightarrow \underset{(II)}{Cl_3SiCH_2CH_2B(OC_4H_9)_2}$$

$$\underset{(I)}{CH_2{=}CHB(OC_4H_9)_2} + CH_3SiHCl_2 \longrightarrow \underset{(III)}{Cl_2(CH_3)SiCH_2CH_2B(OC_4H_9)_2} \quad .$$

In the same way, also the n-butyl ester of allyl boric acid reacts with

Card 1/3

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Organoboron Compounds. LXIV. Reaction of Esters of Unsaturated Organo[illegible] Acids With Silane Chlorides

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S/079/60/030/011/009/026
B001/B066

methyl-silane dichlori[illegible]. A[illegible] to the data of Refs.1-3, the silyl-trichloride and methyl-[illegible]ily [illegible]chloride groups add to the terminal carbon atoms. This addition [illegible] under milder conditions than it is the case in olefins, but i[illegible] is [illegible]possible [illegible] a catalyst. In the presence of platinum hydro[illegible] acid, the a[illegible] triethyl silane to the ester of all[illegible] b[illegible] far mor[illegible]. The addition of both silanes to [illegible] reactions which render the purif[illegible] reactio[illegible] products [illegible] This applies particularly to the [illegible] of silane t[illegible]chloride [illegible] ester of allyl boric acid. A [illegible] of products resulted in [illegible] from which a fraction [illegible] which contained more [illegible] the expect[illegible]. Even [illegible] mild[illegible] conditions [illegible] to could be [illegible]. On the basis of the results obtained [illegible] result Ref.1, the au[illegible] tried t[illegible] carry out the add[illegible]ion of silane [illegible]per of and methyl-silane dichlori[illegible] to (1) and to the butyl ester of allyl boric acid under γ-irradiation. Complicated compounds resulted in this connection. After repeated distillation, a fraction was separated from the reaction products of the butyl ester of allyl boric acid with silane

Card 2/3

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Organoboron Compounds. LXIV. Reaction of Esters of Unsaturated Organoboric Acids With Silane Chlorides

S/079/60/030/011/009/026
B001/B066

trichloride, which also contained more chlorine than the ester $Cl_3Si(CH_2)_3B(OC_4H_9)$. The formation of products with higher chlorine quantities on reaction of the ester of allyl boric acid with silane trichloride in the two above-mentioned cases suggests that not only double bonds but also ester groupings play a role in the reactions of esters of unsaturated organoboric acids. To check this assumption, the following reactions were carried out: the n-butyl ester of n-propyl boric acid was reacted with silane trichloride on heating, and gave the n-butyl ester of n-propyl-chloro-boric acid and other products not identified. There are 7 references: 4 Soviet and 3 US.

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

SUBMITTED: January 3, 1960

Card 3/3

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

[illegible], N.M.; ARONOVICH, P.M.

Decomposition of butyl es[illegible] and [illegible]-dibromopropylboric ac[illegible] no.5: 927-929 My '61. (MIRA 14:5)

1. Institut organicheskoy [illegible]
(Boric acid)

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S/190/61/003/006/009/019
B110/B208

11.2219 also 2209

AUTHORS: Mikhaylov, B. M., Aronovich, P. M.

TITLE: Organoboron compounds. LXXVII. Polymerization of the butyl ester of vinylboric acid

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 6, 1961, 861 - 864

TEXT: H. Normant, J. Braun (Compt. rend. 248, 828, 1959) found that vinylboric acid derivatives were capable of spontaneous polymerization. Studying some reactions of the butyl ester of vinylboric acid the authors observed a spontaneous polymerization of the ester. To investigate the properties of the polymers, the butyl ester of vinylboric acid was polymerized under the action of dry air at room temperature in the presence of the dinitrile of α,α'-azoisobutyric acid. Polymerization proceeded quickly under heat evolution. The resultant gel which was insoluble in organic solvents was transformed into a solid substance after exposure to air. Its analysis was not possible. The empirical composition of the polymer exposed to air was $(C_{12}H_{31}O_{13}B_4)_n$. This is assumed to be a

Card 1/5

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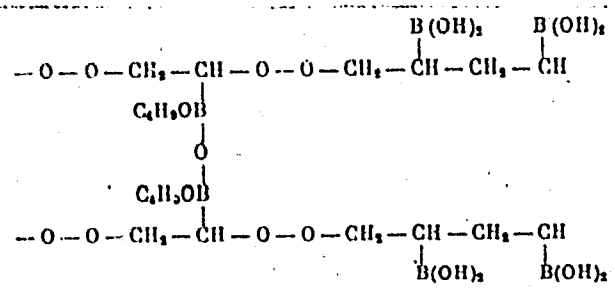
Organoboron compounds ...

trimeric copolymer of the partly hydrolyzed ester of vinylboric acid and oxygen, probably having the following structure:



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When treated with boiling water boric acid and a new polymer with a ~4% boron content are formed. The C-B bonds along the principal chain, which have no part in the building-up of cross-links are destroyed, and the resistance to heat is considerably increased. The mass obtained in nitrogen atmosphere is more mobile than that formed in oxygen atmosphere. The

Card 2/5

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gel is slowly dissolved in benzene. When diluted with isopentane, a hard polymer is separated. It is warmed on exposure to air, darkens, and contains ~10% more oxygen according to ultimate analysis than that separated in nitrogen atmosphere. Addition of the dinitrile of α,α'-azoisobutyric acid as an initiator accelerates polymerization. A low amount of impurities in the initial ester essentially influences the polymerization process. The n-butyl ester of vinylboric acid copolymerizes with styrene to $(C_{20}H_{22}C_7B_2)_n$ and with vinylbutyl ether to $(C_7H_{13}O_3B)_n$. By passing air into 5 g butyl ester for 7 min, the latter was heated and converted to a thick transparent gel. 20 ml absolute benzene were added. After standing for 2 weeks, the gel swelled, the transparent liquid was decanted, and the polymer was allowed to stand for 100 hr at room temperature. Solid clumps are formed which gave 3.9 g of a colorless powder (78% of the initial ester), when triturated. The polymer is insoluble in benzene, acetone, alcohol, dioxane, and boiling chloroform. It turns yellow when heated beyond 120°C, and softens at ~200°C. 0.0662 g polymer was heated for 30 min in 5 ml of distilled water, the residue was filtered, washed out with water and dried in the vacuum at room temperature. 0.03 g of a

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Organoboron compo[illegible]

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yel[illegible] Formula resulting from the analysis: [illegible] is insoluble in organic solvents, slightly [illegible] darkens at 300°C. 2.2 g butyl ester and 0.02 g [illegible] azoisobutyric acid were allowed to stand in N_2-atmosphere [illegible] days at room temperature, then heated for 25 hr [illegible] at 50°C, and for 50 hr on the boiling water bath. 10 ml ab[illegible] were added to the resultant gel. After addition of 100 ml isopentanol the solution darkened and separated a flocculent precipitate which was filtered after 1 day and dried in vacuo. Colorless powder in 21.8% yield. Formula obtained by the analysis: $(C_{17}H_{36}O_{12}B_4)_n$. The polymer is insoluble in benzene, darkens at >120°C and softens at ~200°C. When exposed to air, it becomes warm and darkens. After exposure to air for 3 days the composition was $(C_{11}H_{30}O_{13}B_{30})_n$. A mixture of 3.76 g (0.02 mole) butyl ester and 1.5 g (0.02 mole) vinylethyl ester and 0.05 g dinitrile of α,α'-azoisobutyric acid was heated, after standing for 2 days in a sealed ampul, for 50 hr at 40°C, for 25 hr at 60°C, and for 25 hr on the boiling water bath; the viscosity increased within the first 50 hr. 60 ml

Card 4/5

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B110/B208

Organoboron compounds ...

isopentane were added after dissolution in 3 ml benzene. Formula assumed: $(C_7H_{13}O_3B)_n$. The polymer was not soluble in benzene, darkened as $>120^\circ C$, and softened at $\sim 180^\circ C$. In the copolymerization of the n-butyl ester of vinylboric acid with styrene a colorless, powder resulted in a 20% yield; it was insoluble in alcohol, acetone, benzene, dioxane and boiling chloroform: $(C_{20}H_{32}O_7B_2)_n$. There are 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The references to English-language publications read as follows: Ref 5: R. L. Letsinger, S. B. Hamilton, J. Amer. Chem. Soc., 81, 3009, 1959. Ref 6: W. J. Lennarz, H. R. Snyder, J. Amer. Chem. Soc. 82, 2169, 1960. Ref 8: A. A. Miller, F. R. Mayo, J. Amer. Chem. Soc., 78, 1023, 1956.

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

SUBMITTED: July 28, 1960

Card 5/5

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L 19489-65 EPF(c)/EPR/EWA(h)/EWP(j)/EWT(m) Pc-4/Pr-4/Pr-4

ACCESSION NR: AP5002070 S/0062/63/000/007/1233/1239

AUTHOR: Mikhaylov, B. M.; Aronovich, P. M.

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1963, 1233-1239

TOPIC TAGS: [illegible]

[illegible] A study of the influ[illegible] the dibutylboron gr[illegible] on the addition of diborane to the double b[illegible] in dibutylvinylborate showed [illegible] the boron adds in both [illegible] there conditions. Thus, the [illegible]

[illegible] and a table is presented [illegible] other physical properties of ethan-1,1- and ethan-1,2-[illegible] with n-butanol and ethylene glycol. Orig. art. has:

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L 19189-65

ACCESSION NR: AP5002070

1 table and 6 chemical equations.

ASSOCIATION: Institut organicheskoy khimii [illegible]

[illegible] ENCL: 00 SUB CODE: OC

NO REF SOV: 004 OTHER: 006

Card 2/2

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000102120018-6

NIKITINA, A.N.; PETUKHOV, V.A.; GALKIN, A.F.; FEDOTOV, N.S.; BUBNOV, Yu.N.; ARONOVICH, P.M.

Absorption spectra of organoboron compounds in the vacuum ultraviolet region. Opt. i spektr. 16 no.6:976-983 Je '64. (MIRA 17:9)

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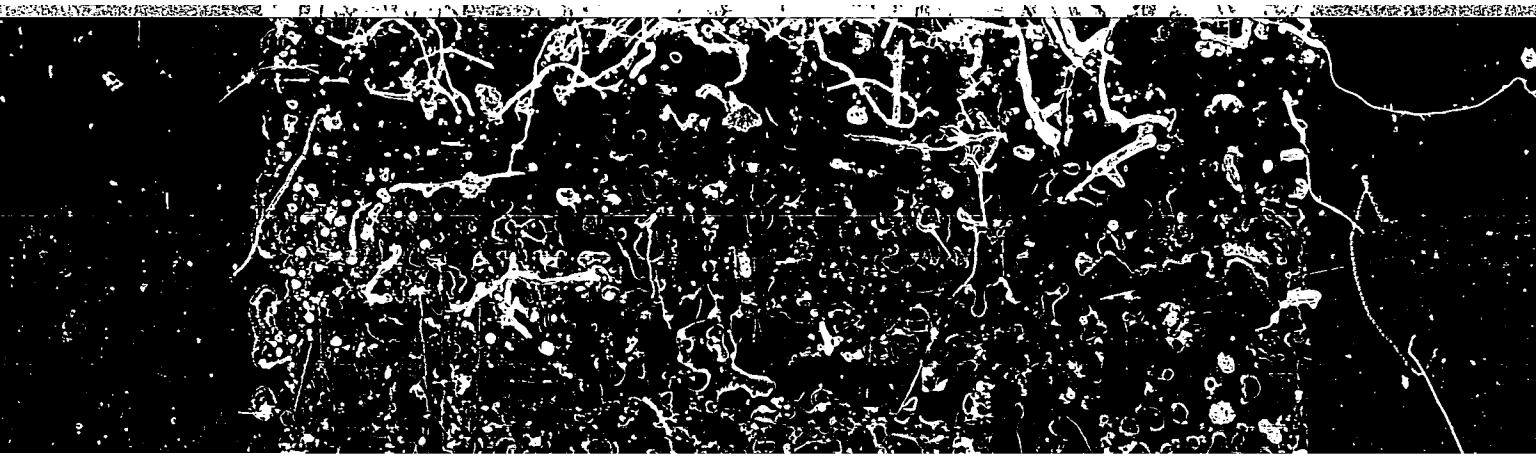

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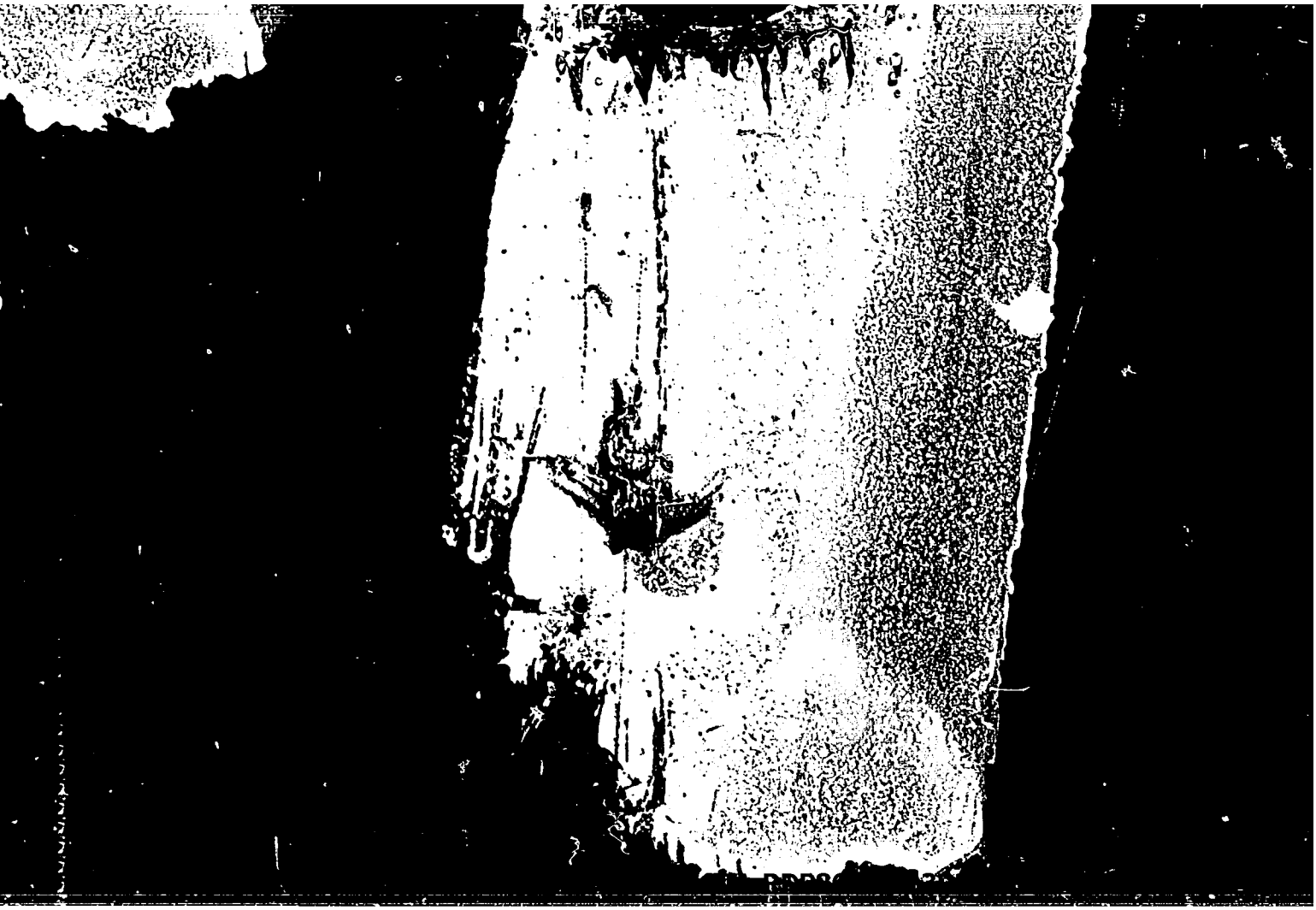

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[redacted]

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