LAVROV, K.A.; MAKLETSOV, P.F.; RODZHANOV, S.A.

Petr Andreevich Sokolov; on his 60th birthday. Arkh.anat.gist.i embr. 39 no.7:124-125 Jl '60. (MIRA 14:5)
(SOKOLOV, PETR ANDREEVICH, 1900-)

MAKLETSOVA, N.N., kand.tekhn.nauk

First experiment in degree projects in the architecture sections. Sbor. metod. rab. Bel. politekh. inst. no. 1:89-93 '59.
(MIRA 14:1)
(Project method in teaching) (Architecture--Study and teaching)

VELIKOSELETS, I., student; LINEVICH, Ya., student; PRONICHEV, Ye., student;
MAKLETSOVA, N.N., dotsent, nauchnyy rukovoditel'; TRAKHTENBERG, N.,
dotsent, nauchnyy rukovoditel'.

New principles in planning and building large urban residential
blocks as exemplified by the planning of a microdistrict in the
city of Minsk. Sbor.nauch.trud.Bel.politekh.inst. no.81:
139-146 '59. (MIRA 13:5)
(Minsk--City planning)

MAKLETSOVA, N.N.; BELOGORTSEV, I.D.; VARAKSIN, V.N.; YELISEYEV, I.K.; ZYSMAN, A.I.; VOINOV, A.P., prof., retsenzent; CHECHKO, E.I., red.; KUZ'MENOK, P.T., tekhn.red.

[Principles of designing apartment houses] Osnovy proektirovaniia zhilykh zdanii. Minsk, Red.-izdat.otdel, Belorusskogo politekhn. in-ta im. I.V.Stalina, 1960. 194 p. (MIRA 13:8)

1. Minsk. Belorusskiy politekhnicheskiy institut. 2. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR i chlen-korrespondent Akademii nauk BSSR (for Voinov).
(Apartment houses)
(Architecture--Designs and plans)

MAKLETSOVA, N.P.

Use of radioactive phosphorus (P^{32}) for the differential diagnosis of superficial malignant and benign neoplasms. Vop. onk. 5 no.12: 702-706 '59. (MIRA 13:12)

(TUMORS) (PHOSPHORUS—ISOTOPES)

MAKLETSOVA, N.P.

Treatment with radioactive phosphorus of patients with polycythemia vera and lymphogranulomatosis. Med.rad. 5 no.5: 26-29 '60. (MIRA 13:12)

(PHOSPHORUS—ISOTOPES) (ERYTHREMIA)
(HODGKIN'S DISEASE)

SOBOLEVA, I.; MAKLITSOVA, N.

Measuring large molecules. IUn.tekh. 3 no.9:24-27 S '58. (MIRA 11:10)

(Molecules--Measurement)

MAKLETSOVA, N.V.

5

The mechanism of emulsion polymerization. B. V. Zabolotskaya, I.G. Soboleva, N. V. Makletsova, and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 94, 81-4 (1954).—The relations are illustrated among av. mol. wt., no. of polymer particles, the amt. of isoprene absorbed, time, and the av. diam. for the emulsion-polymerization of isoprene (2 to 14 g./100 ml. soln.) at 50°, emulsified by hexadecylpyridinium bromide with H_2O_2 as initiator. C1

Polymerization begins only in particular micelles in which a free radical or initiator mol. is present, then continues so that almost all the micelles participate, and the no. of polymer particles increases very rapidly without much change in particle size. Marked increase in particle size occurs only after uncombined soap mols. disappear. F. H. R.

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MAKLETSOVA, N.V.

62

The structure of polyacrylic esters by the method of light scattering. I. G. Soboleva, N. V. Makletsova, and S. S. Medvedev. *Doklady Akad. Nauk S.S.S.R.* 94, 250-62 (1954).—Polycetyl acrylate (I) and polymethyl acrylate (II) were prepd. by polymerizing the esters at 50° in the presence of 0.01 mole/l. BzO_2 and at varying concns. Under these conditions II is nonlinear, but the branching is not great enough to influence the viscosity of the solns. The presence in I of short side chains does not alter the properties characteristic of linear polymers. H. M. Leicester

②

MAKLETSOVA, N.Y.

3

1

Chem

Structure of butadiene-styrene copolymers. I. G. Soboleva, N. V. Makletsova, A. V. Matveeva, and S. S. Medvedev. Colloid J. U.S.S.R. 18, 333-7(1956)(English translation).—See C.A. 51, 8084. R. M. R.

4

RM

Makletsova, N. V.

Structure of butadiene-styrene copolymers. I. G. Soboleva, N. V. Makletsova, A. V. Matveeva, and S. S. Medvedev (L. Ya. Karpov Sci. Research Inst. Phys. Chem., Moscow). *Kolloid. Zhur.* 18, 344-9(1956); cf. C.A. 50, 10481f.—The asymmetry (detd. from the angular distribution of light scattering) of copolymer particles (prepd. by emulsion polymerization) was greater, the greater was the degree of polymerization (10-60%) and the mol. wt. (from light scattering) of the fraction isolated, and also the higher the temp. of polymerization (−13° to +40°). The mol. wt. of various fractions was 2 × 10^6 to 3 × 10^6. The mol. wt. detd. osmometrically (through a membrane of regenerated cellulose) was 0.1-0.3 of that detd. optically; the copolymer contained a small no. of large particles that were nuclei of a space lattice. The ratio of optical to osmotic mol. wt. was smaller (1.7-2.1) in copolymers of $CH_2:CHCO_2Me$ and $CH_2:CHCO_2C_{18}H_{37}$.

L. I. Bikerman

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MAKLETSOVA, N.V.

Study of the mechanism of emulsion polymerization. E. V. Zabolotskaya, I. G. Soboleva, N. V. Makletsova, and S. S. Medvedev (L. Ya. Karpov Inst. Phys. Chem., Moscow). *Kolloid. Zhur.* 18, 420-6(1956); cf. *C.A.* 50, 16201*h*.—An aq. soln. of *N*-cetylpyridinium bromide (I) and H_2O_2 (0.45%) was continually satd. with isoprene (II) vapor at 50°. Except during a 1st period (of satn.), the rate of the uptake of II by the aq. phase (i.e. polymerization) was const. during each reaction; it was greater when the concn. of I was greater (5% instead of 2.5%). The total area of the latex globules in 1 cc. changed little during the reaction; it was about 4×10^5 in 5% I and 2.3×10^4 sq. cm. in 2.5% I; thus, the reaction occurred on the surface of the globules. The no. of globules decreased during the reaction, especially after the I micelles disappeared and I was present chiefly as an adsorbed layer on polymer globules; this point was reached when the surface tension of the aq. phase (which was, e.g., 31 dynes/cm. before the reaction) rose to 42, i.e. to that at the crit. concn. of micelle formation of I. Polymerization starts in some micelles but continues in almost all of them; coalescence accompanies the growth of micelles.

J. J. Bikerman

MAKLETSOVA, N.V.

√The mechanism of emulsion polymerization. E. V. Zabolotskaya, I. G. Soboleva, N. V. Makletzova, and S. S. Medvedev. *Colloid J.* (U.S.S.R.) 43, 413-20(1956)(English translation).—See *C.A.* 51, 1644a. R. M. P.

Makletsova, N. V.

USSR/ Chemistry - Physical chemistry

Card 1/1		Pub. 22 - 34/54
Authors	:	Soboleva, I. G.; Makletsova, N. V.; and Medvedev, S. S., Memb. Corr., Acad. of Sc., USSR
Title	:	Formation of polymers in solutions in presence of a precipitating agent
Periodical	:	Dok. AN SSSR 106/2, 303-306, Jan 11, 1956
Abstract	:	Linear polystyrene and butadienestyrene copolymers having a different degree of branching were investigating to determine the structure of polymers formed in solutions in the presence of a settling agent. Nephelometric molecule dimension measurements were made in a pure toluene solution of polystyrene and in solutions with different settling agent admixtures. The minimum molecule dimension observed near the point of settling was found to be the parameter characterizing the structure of the molecular polymer chain and the branching properties of polymers. Six references: 3 USSR, 1 Eng., 1 USA and 1 French (1950-1954). Tables; graphs.
Institution	:	Scient. Res. Physicochemical Inst. im. L. Ya. Karpov
Submitted	:	April 1, 1955

MAKLESOVA, N. V., SOBOLEVA, Y. S., and MEDVED'YEV, S. S.

"Lightscattering of branched polystyrenes," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov Inst.

B-3,084,395

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1-RML
2-May
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Distr: 4E3d/4E4j/4E2c(j)

7

Study of the structure of branched polystyrene by light scattering. I. G. Soboleva, N. V. Makletsova, and S. S. Medvedev. Kolloid. Zhur. 19, 619-23(1957); cf. C.A. 50, 10483.—Branched polystyrenes were made in a reaction of brominated polystyrene (3.5% Br) with styrene contg. C^{14}, and the degree of branching of various fractions was estd. from their radioactivity. The mol. wt. M of the fractions varied between 1.6×10^6 and 6.3×10^6, and the no. of side chains per mol. from 4 to 28. The ratio $h/M^{1/2}$, from light scattering, was smaller for branched than for linear polymers; h = the root-mean-square distance between the ends of a chain. Light-scattering data agreed with viscosity data. Branched polymers sepd. from a soln. in toluene + MeOH at lower temps. than did linear polymers.
J. J. Bikerman

1/1

Sci-Res-Inst-Phys-Chem Inst im L. Ya Karpov

00291

S/190/60/002/008/011/017
B004/B054

15.8101 2209, 1403

AUTHORS: Soboleva, I. G. (Deceased), Makletsova, N. V., Medvedev, S. S.

TITLE: Structure of the Molecular Chain of Polyethylene Obtained Under the Action of γ-Radiation

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 8, pp. 1234-1238

TEXT: The present paper gives the results of investigation of the molecular-chain structure of polyethylene polymerized in the gaseous phase by gamma radiation at 25°C. The effect of some admixtures was also studied. Further, the authors calculated the molecular weight (nephelometrically), the intrinsic viscosity of the polymer dissolved in octane, and the root mean square of the distance h between the chain ends by the equation of Flory $[\eta] = \Phi(\overline{h^2})^{1/2}/M$, where $[\eta]$ = intrinsic viscosity, Φ = Flory constant, and M = molecular weight. The results are summarized in the following tables: Table 2; effect of admixtures on the average molecular weight of poly-

Card 1/5

86297

Structure of the Molecular Chain of Polyethylene S/190/60/002/008/011/017
Obtained Under the Action of γ-Radiation B004/B054

ethylene

Intensity of radiation, roentgens/sec	Duration of polymerization, h	Pressure, atm	Admixture	Percent by weight of admixture in the mixture	Molecular weight $M \cdot 10^{-3}$
81	36	85.5	-	0	260
81	36	87.6	hydrogen	0.440	80
81	36	87.0	ditto	0.158	80
81	36	87.0	ditto	0.037	100
81	36	87.0	ditto	0.018	60
82	12	100.0	heptane	13.5	60
27	12	100.0	ditto	19.7	40
27	24	100.0	ditto	9.5	66

Table 3, Dependence of the average molecular weight of polyethylene on the initial pressure of ethylene (intensity of radiation 81 roentgens/sec, duration 36 h, temperature 25°C)

Card 2/5

Structure of the Molecular Chain of Polyethylene Obtained Under the Action of γ-Radiation

86297
S/190/60/002/008/011/017
B004/B054

Initial pressure, atm	Yield in polymer, %	$M \cdot 10^{-3}$	Initial pressure, atm	Yield in polymer, %	$M \cdot 10^{-3}$
59.6	8.9	50	87.5	21.0	150
65.0	12.4	60	100.0	44.0	320
70.0	18.2	110	100.0	47.0	insoluble

Table 4, Dependence of the mean molecular weight and the intrinsic viscosity on temperature, intensity, and radiation dose:

Temperature, °C	Initial pressure, atm	Dose, 10^{-6} roentgens	Yield %	$M \cdot 10^{-3}$	[η] 100 ml/g		h,A in	
					in octane 95°C	in xylene 105°C	octane 95°C	xylene 105°C
		Intensity 17 roentgens/sec						
25	100	1.47	11.3	130	0.96	-	400	-
25	100	2.26	20.0	200	1.18	-	400	-
25	150	0.73	7.2	330	1.45	1.80	600	650
50	174	0.73	4.7	435	-	1.25	-	640

Card 3/5

86297

Structure of the Molecular Chain of Polyethylene Obtained Under the Action of γ-Radiation

S/190/60/002/008/011/017
B004/B054

Table 4 continued:

		Intensity 27 roentgens/sec						
25	100	2.32	13.2	125	0.86	-	370	-
25	100	3.40	21.6	250	1.32	-	540	-
25	100	3.90	24.2	490	-	1.95	-	780
25	150	1.18	11.4	250	-	1.50	-	560
50	178	1.18	6.1	540	-	1.30	-	700
		Intensity 33 roentgens/sec						
25	100	1.43	5.7	50	0.65	0.70	225	-
25	100	2.85	14.9	150	0.77	-	380	-
25	150	1.43	12.4	280	-	1.55	-	600
50	176	1.43	8.6	800	-	1.33	-	800
		Intensity 72 roentgens/sec						
25	100	6.23	22.8	190	0.96	-	450	-
25	100	9.35	44.0	320	-	1.9	-	660
25	150	3.12	15.6	260	1.25	1.78	510	600
25	200	3.12	17.1	280	1.15	1.66	540	600

Card 4/5

86297

Structure of the Molecular Chain of Polyethylene Obtained Under the Action of γ-Radiation

S/190/60/002/008/011/017
B004/B054

Table 4 continued:

		Intensity 82 roentgens/sec						
25	100	3.54	10.5	56	0.43	-	225	-
25	150	3.54	14.6	125	0.90	-	375	-
50	176	3.54	10.4	230	0.66	0.71	380	430

The following conclusions are drawn: 1) The macromolecular chain of polyethylene shows only slight ramification which only slightly changes in the investigated range of intensity and radiation dose and ethylene concentration. 2) At a temperature increase to 50°C, the molecular weight rises and ramification increases. There are 3 figures, 4 tables, and 7 references: 4 Soviet, 2 US, and 1 Belgian.

X

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
(Physicochemical Institute imeni L. Ya. Karpov)

SUBMITTED: March 31, 1960

Card 5/5

MAKLETSOVA, N.V.; EPEL'BAUM, I.V.; ROZENBERG, B.A.; LYUDVIG, Ye.B.

Determination of molecular weight and molecular weight distribution of polytetramethylene oxide. Vysokom.soed. 7 no.1:70-73 Ja '65. (MIRA 18:5)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva.

DECEASED

LANOVSKAYA, L.M.; MAKLETSOVA, N.V. [deceased]; GANTMAKHER, A.R.;
MEDVEDEV, S.S.

Polymerization of ethylene in the presence of various composite catalysts based on $TiCl_3$. Vysokom. soed. 7 no.4:741-746 Ap '65.

Nature of the active centers in the processes of polymerization in the presence of composite catalysts based on $TiCl_3$. Ibid.: 747-750

(MIRA 18:6)

1. Fiziko-khimicheskiy institut imeni Karpova, Moskva.

MAKLJANIC, Berislv (Zagreb)

A contribution to the mathematical theory of air flow over mountains including effects of turbulent viscosity. Glas mat fiz Hrv 18 no. 3:207-222 '63.

1. Institute of Geophysics, University of Zagreb.

MAKLONKO, K. P.

"Elementary theoretical ideas of contaminant washout from the atmosphere."

paper to be presented at the Symposium on Atmospheric Chemistry, Circulation & Aerosols, Visby, Sweden, 18-25 Aug 1965.

Hydrometeorological Service USSR.

FEFILOV, V.V.; CHISTOV, I.F.; BOGOYAVLENSKAYA, V.N.; Prinimali uchastiye: POPOV, G.A., rabotnik; LARINA, Ye.M., rabotnitsa; MAKLOVA, A.F., rabotnitsa

Utilization of white pigment and sewage waters of the Dmitriyevsk Wood Chemical Plant. Sbor.trud.TSNILKHI no.14: 60-73 '61. (MIRA 16:4)

1. Dmitriyevskiy lesokhimicheskiy zavod (for Popov, Larina, Maklova).
(Makeyevka--Wood using industries--By-products)
(Fertilizers)

MAKLOVICH, S.T.; KOZULIN, Yu.N.

Study of certain improper integrals containing Bessel's functions. Uch. zap. Kish. un. 75:18-20 '64.
(MIRA 18:10)

MAKLOVICH, S.T.; KOZULIN, Yu.N.

Some transformations of integrals of a special type containing exponential and Bessel functions. Uch.zap.Kish.un. 69:14-18 '64. (MIRA 18:12)

L 08316-67 EWT(d) IJP(c)

ACC NR: AR6033776 SOURCE CODE: UR/0058/66/000/007/B003/B003

AUTHOR: Maklovich, S. T.

35

16

TITLE: Improper special type integrals containing Bessel and elementary functions

SOURCE: Ref. zh. Fizika, Abs. 7B26

REF SOURCE: Uch. zap. Kishinevsk. un-t, v. 80, 1965, 117-120

TOPIC TAGS: Bessel function, electromagnetic field, elementary function, integral, improper integral, oscillating dipole, horizontal layered structure

ABSTRACT: An analysis is made of integrals encountered in problems on the determination of the electromagnetic field of an oscillating dipole situated on the surface of a horizontally layered structure. [Translation of abstract]

SUB CODE: 12, 20/

Card 1/1 nst

MAKLYAK, M.M.

Some problems in the elementary mastery of arithmetical operations by first grade pupils. Nauk. zap. Nauk.-dosl. inst. psykhol. 11:127-129 '59. (MIRA 13:11)

1. Pedagogishcheskiy institut, Zaporozh'ye. (Number concept)

MAKLYAK, N. M.

Maklyak, N. M.

"The Psychology of the Mastery of Arithmetic Operations by Students of the First Class." Min Higher Education USSR. Odessa State U imeni I. I. Mechnikov, Odessa, 1955. (Dissertation for the Degree of Candidate in Pedagogical Science)

So: Knizhnaya letopis', No. 27, 2 July 1955

MAKLYAK, V.I.

Calculating the transformation of floods in natural conditions.
Trudy Ukr. NIGMI no.3:136-142 '55. (MIRA 9:10)

1. Institut gidrologii i gidrotekhniki Akademii nauk USSR.
(Floods)

MAKIYAKOVA, T.F.; TSARINSKAYA, K.I.

Effect of pentoxyl combined with levomycetin and streptomycin on the absorptive power of the reticuloendothelial system under experimental conditions. Antibiotiki 10 no.11:1017-1019 N '65. (MIRA 19:1)

1. Kafedra mikrobiologii (zav. - dotsent S.M. Rassudov) Chitinskogo meditsinskogo instituta. Submitted January 15, 1965.

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2

Distr: 4E2c/4E4j

27

Increasing the efficiency of nickel in nickel oxide electrodes. I. P. Samokhvalov, D. B. Zlotnikova, and A. A. [illegible] U.S.S.R. 108,1[illegible], Oct. 25, 1957. The addn. of Hg or its compds. improves the efficiency of Ni oxide electrodes of alk. batteries. M. Hosch

1/1

39

3C

L 23008-66 FSS-2/EWT(l)/EWT(m)/ETC(f)/EWG(m) JD/HW
ACC NR: AP6007662 SOURCE CODE: UR/0413/66/000/003/0031/0031

AUTHOR: Rozovskiy, V. M.; Fisher, T. L.; Basharina, Yu. I.; Chebakova, N. A. Kuz'min, V. A.; Maklyarskaya, A. A.; Avdeyeva, I. D.; Gavrilina, L. V.

51
B

ORG: none

TITLE: Iron-[27]nickel[27] alkaline battery.[29] Class 21, No. 178401 [announced by the Scientific-Research Institute for Chemical Current (Nauchno-issledovatel'skiy institut khimicheskikh istochnikov toka)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 31

TOPIC TAGS: battery, alkaline cell

ABSTRACT: An Author Certificate has been issued for an iron-nickel alkaline battery with lamellar-perforated electrodes of which the negative one is made from hydrogen-reduced iron. In order to increase the capacity at low temperatures and after prolonged discharge, the active mass of the iron electrode is supplemented with additions of antimony oxide and sulfide sulfur. The additions range from 2--4% for antimony oxide and 0.4--0.6% for sulfide sulfur. The iron electrode is

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Card1/2 UDC: 621.355.8

L 23008-66

ACC NR: AP6007662

O

produced in the form of lamellar tape with 16 to 18% open surface. [LD]

SUB CODE: 10/ SUBM DATE: 13Aug64/

Card 2/2 *pla*

PETROV, K.A.; SHEVCHENKO, V.B.; TIMOSHEV, V.G.; MAKLYAYEV, F.A.; FOKIN, A.V.; RODIONOV, A.V.; BALANDINA, V.V.; YEL'KINA, A.V.; NAGNIBEDA, Z.I.; VOLKOVA, A.A.

Alkyl phosphonates, diphosphonates, and phosphine oxides as extracting agents. Zhur.neorg.khim. 5 no.2:498-502 F '60. (MIRA 13:6)

(Phosphonic acid) (Phosphine oxide)
(Extraction(Chemistry))

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

70

The role of copper in the preparation of metallo-aromatic compounds by the diazo reaction and some considerations about the mechanism of the Sandmeyer reaction. A. B. Bruker and F. L. Maklyarev. *Doklady Akad. Nauk S.S.S.R.* 63, 271-4(1948).—PhNHNH, with $PhAsO_3H_2$ in water in the absence of Cu at 70-5° gives up to 40% $(Ph_2As)_2O$ and Ph_3As; thus the reaction can proceed without Cu under the conditions of the Wieland or Zeide-Sherlin-Braz reactions (Z., *et al.*, C. A. 27, 4784). Arylation of arsenic acid under the Wieland reaction conditions but in the presence of Cu gives Ph_3As; hence arylation of inorg. As compds. requires Cu. The previously given concept of diazo reactions (Bruker, *ibid.*, 58, 803(1947)) can be applied to the Sandmeyer reaction with intermediate formation of $(ArN{:}NMX_3)X$ where M would be As in this instance, followed by loss of N_2, and the formation of the intermediate, where all X's are inorg. residues, can occur only in the presence of Cu; the single electron transfer from the hetero atom (As in this case) to N occurs only through its passage via the Cu atom. If some of the X's are not inorg. (Ph), then the transfer of the hetero atom to the quadrivalent state is facilitated by resonance with the Ph ring and Cu is not necessary. The connection of the Sandmeyer reaction with the formation of metallo-aromatics by the diazo reaction thus lies in formation of Cu-aromatic intermediates.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MAKLYAYEV, F.L.

USSR/Chemistry - Addition reactions

Card 1/1 : Pub. 151 - 28/42

Authors : Titov, A. I., and Maklyaev, F. L.

Title : Conjugated addition reactions of halogens to olefins. Part 1.-

Periodical : Zhur. ob. khim. 24/9, 1624-1630, Sep 1954

Abstract : The idea of conjugated addition reactions of halogens over multiple bonds is introduced and reviewed. Experiments showed that halogen molecules display the characteristics of strong aprotonic acids (effective electrophilic nature), and olefins (in a somewhat less effective form) possess these basic characteristics only as result of the relatively weakly bound pi-electrons. The initial stages of reaction, between halogens and olefins, are explained. The general laws and the special cases where halogens react with unsaturated compounds, in accordance with the ion mechanism, are listed. Forty-five references: 23-USA; 18-USSR and 4-German (1905-1948).

Institution : ...

Submitted : March 19, 1954

MAKLYAYEV, F.L.

USSR/Chemistry - Addition reactions

Card 1/1 : Pub. 151 - 29/42

Authors : Titov, A. I., and Maklyaev, F. L.

Title : Conjugated addition reactions of halogens to olefins. Part 2.-

Periodical : Zhur. ob. khim. 24/9, 1631-1635, Sep 1954

Abstract : Investigations were conducted for the purpose of finding suitable methods of synthesizing beta-halogenated ethyl ethers of benzene-and p-toluene sulfonic acids, beta-chlorethyl sulphate, chlorosulfonate, phosphate and mixed 1,2-dihalogenated ethanes by the conjugated reaction method by directing the alkylating action of the complex to proper third component. The results obtained are described in detail. Seven references: 2-USA; 2-USSR and 3-German (1920-1954). Tables.

Institution : ...

Submitted : March 19, 1954

MAKLYAYEV, F.L.

USSR/Chemistry - Addition reactions

Card 1/1 Pub. 151 - 30/37

Authors : Titov, A. I., and Maklyaev, F. L.

Title : Conjugated addition reactions of halides to olefines. Part 3.- Order of addition to nonsymmetrical olefines.

Periodical : Zhur. ob. khim. 24/10, 1860-1862, Oct 1954

Abstract : A method determining the order of addition of halides to other nonsymmetrical olefines, in the case of conjugated reactions, is briefly described. The products obtained from the reaction of Cl with propylene, in a medium of homologous acids, are listed. The order of addition of olefines (e. g., to propylene) in conjugated reactions can be determined by considering the effect of substitutes on the distribution of the positive charge in the intermediate halide-olefine complex. Five references: 2-USSR; 1-Belgian; 1-French and 1-German (1902-1954).

Institution : ...

Submitted : March 19, 1954

MAKLYAYEV, F.L.

USSR/Chemistry - Addition reactions

Card 1/1 Pub. 22 - 26/47

Authors : Titov, A. I., and Maklyayev, F. L.

Title : Conjugated addition reactions of halides to olefins

Periodical : Dok. AN SSSR 98/5, 795-798, Oct 11, 1954

Abstract : The mechanism of conjugated addition reactions, especially in the case of the addition of halides to olefins of an ionic or radical nature, is explained. Using the method of conjugated reactions - simultaneous introduction of halides and olefin into appropriate acids - the authors realized the synthesis of Beta-chloro- and beta bromoalkyl esters of different acids. The addition products, obtained from halide-olefin conjugated reaction, are described. The application of the conjugated reaction idea to other types of additions, with multiple bonds, was recommended. Five references: 2-USSR; 2-USA and 1-German (1925-1947).

Institution : ...

Presented by : Academician I. L. Knunyants, May 27, 1954

MAKLYAYEV, F. L.

4

Conjugated reactions of addition of halogens to olefins. IV. Preparation of β-haloethyl esters of formic, acetic, chloroacetic and trichloroacetic acids. A. I. Titov, F. L. Maklyaev, and V. G. Kuz'min. *Zhur. Obshchei Khim.* ~~J.~~ *Gen. Chem. U.S.S.R.* 25, 709-11(1955)(Engl. translation); cf. *C.A.* 49, 13085c.—Into 63 ml. AcOH was passed for 2 hrs. 19.2 l. Cl and 23.3 l. C_2H_4 with very vigorous stirring; after washing with H_2O and NaOH there was obtained 83.1 g. $ClCH_2CH_2OAc$, b. 143-6°, d_{20} 1.1405, n_D^{20} 1.4255. If 12 l. Cl and 14 l. C_2H_4 are passed into AcOH as above with addn. of 32 g. $Hg(OAc)_2$ just before passage and a similar amt. being added at the half-point in the reaction, the yield of the ester reaches 67%. C_2H_4 (5 l.) was passed into 50 ml. AcOH, 40 g. $Hg(OAc)_2$, and 30 g. Br over 1 hr., yielding as above about 60% $BrCH_2CH_2OAc$, b. 159-61°. Passage of 25.6 l. Cl and 28 l. C_2H_4 at 30° into 62 g. HCO_2H (d. 1.2) gave 58.1 g. $ClCH_2CH_2O_2CH$, b. 129-30°, d_{20} 1.2500, n_D^{20} 1.4258. Passage of 10 l. Cl and 11 l. C_2H_4 into 100 g. CCl_3CO_2H at 75° gave 35% $ClCH_2CH_2O_2CCCl_3$, b. 217°, b_{18} 95-105° (crude); $ClCH_2CO_2H$ similarly gave 40% $ClCH_2CH_2O_2CCH_2Cl$, b. 197-8°. G. M. Kosolapoff

TITOV, A.I.; MAKLYAYEV, F.L.; KUZ'MIN, V.G.

Conjugate reaction of adding halides to olefins. Part 4. Preparation of β-haloethyl esters of formic, acetic, chloroacetic, and trichloroacetic acids. Zhur.ob.khim. 25 no.4:744-747 Ap '55. (MLRA 8:7)
(Ethyl alcohol) (Acids, Organic) (Halides)

MAKLYAYEV, F. L

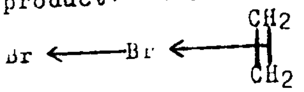
79-2-60/64

AUTHORS: Titov, A. I., Maklyayev, F. L.

TITLE: In a Course of Discussion: a Reply to the "Remarks" of Ye. A. Shilov (V poryadke diskussii v otvet na "Zamechaniya" Ye. A. Shilova).

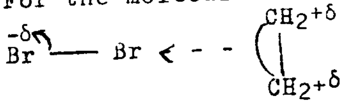
PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 551-553 (USSR)

ABSTRACT: The work by Dewar (ref. 2) on the structure of the intermediate product ⟼ of the olefin complex with the halogen molecule



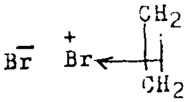
$Br \longleftarrow Br \longleftarrow \overset{CH_2}{\underset{CH_2}{\|}}$

published in 194[illegible] is the basis of the "discussions" which have been led since 1953 between the authors of this article and that mentioned in the title. The above formula was given by Shilov as far as the adduct of the bromine cation was concerned. For the molecule of the halogen complex the structural formula



$\overset{-\delta}{Br} — Br \leftarrow - - \overset{CH_2^{+\delta}}{\underset{CH_2^{+\delta}}{|}}$

by Titov et al. was quoted. Shilov then described the formula



$\bar{Br}\ \overset{+}{Br} \longleftarrow \overset{CH_2}{\underset{CH_2}{\|}}$

as correct not noticing that under certain conditions it is identical with the first mentioned. In his third variant of "Remarks" (in ZhOC) Shilov

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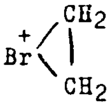
In a Course of Discussion: a Reply to the "Remarks" of Ye. A. Shilov. 79-2-64/64

said that the formula of the hypothetical cation applied by Titov et al. and the Roberts-Kimbal  formula cannot be brought in line. Knunyants, Kabachnik (ref.4) et al. however, also (like Titov et al.) identified the π-complex with the structure by Roberts-Kimbal, since in principle both formulae represent an adduct in which the bromine cation is chemically bound to both atoms of theethylene carbon. The brokenarrow in the second formula (by Titov et al.) is to stress the weak donor-acceptor binding between Br_2 and C_2H_4 in the complex as O.A.Reutov (ref. 7) did also in his explanation of the Shilov's results.According to A. N. Nesmeyanov (ref. 11) the reactions to be investigated can be regarded as coupled affiliation reactions of the haloids to the olefins. In the formal conception of Ye. A. Shilov of this reaction the electrophilic character of the complex as well as the reaction principle are not present. Furthermore some assertions made by Shilov are disproved of and the following conclusions are made: the first "Remark" by Shilov was based on an error which lead him to further unfounded statements. The important results of the investigations which considerably contributed to the theory of the coupled affiliation in the field of the complex halogen ..o-

Card 2/3

In a Course of Discussion: a Reply to the "Remarks" of Ye. A. Shilov. 79-2-62/64

lecules and olefins were ignored by Ye. A. Shilov and the results were described as preparative. There are 12 references, 9 of which are Slavic.

SUBMITTED: September 2, 1957

AVAILABLE: Library of Congress

Card 3/3

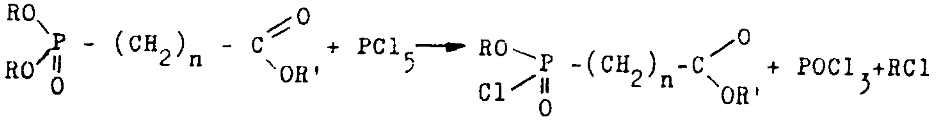
SOV/79-29-1-63/74

AUTHORS: Petrov, K. A., Maklyayev, F. L., Korshunov, M. A.

TITLE: Halogen Anhydrides of the Esters of Phosphono Carboxylic Acids (Galoidangidridy efirov fosfonkarbonovykh kislot). I. Synthesis of P-Monochloric Anhydrides of the Dialkyl Esters of Phosphono Carboxylic Acids (I. Sintez P-monokhlorangidridov dialkilovykh efirov fosfonkarbonovykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 301-305 (USSR)

ABSTRACT: The chloric anhydrides of phosphono carboxylic acids have hitherto not been investigated (Refs 1,2). In this connection the methods of synthesis of P-chloric anhydride of the dialkyl esters of phosphono carboxylic acids are investigated, which were mainly prepared by reaction of phosphorus pentachloride with neutral esters of these acids:



Owing to the three ester groups in the ester of phosphono carboxylic acid this reaction could proceed in a different way

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Halogen Anhydrides of the Esters of Phosphono Carboxylic Acids. I. Synthesis of P-Monochloric Anhydrides of the Dialkyl Esters of Phosphono Carboxylic Acids

and lead to a mixture of different products. It was, however, proved that the substitution of chlorine for one group of esters in the esters of phosphono carboxylic acids takes place easily and clearly under certain conditions in the case of action of PCl_5, in which case various groups of esters in connection with phosphorus (OCH_3,OC_2H_5,OC_3H_7-iso,OC_4H_9-n., OC_5H_{11}-iso) are just easily replaced by chlorine. The yield in monochloric anhydrides amounts to 60 - 85%. Monochloric anhydrides of the esters of phosphono formic acid are also obtained in good yield by chlorination of the mixture of PCl_3 and a neutral ester of phosphono formic acid, in which case phosphorus pentachloride forms during the process of chlorination. According to these methods 12 P-chloric anhydrides of dialkyl esters of phosphono formic acid, acetic acid and propionic acid were synthesized as well as the chloric anhydride of the diethyl ester of thiophosphono propionic acid.

Halogen Anhydrides of the Esters of Phosphono Carboxylic Acids. I. Synthesis of P-Monochloric Anhydrides of the Dialkyl Esters of Phosphono Carboxylic Acids SOV/79-29-1-63/74

Monochloric anhydrides of the diethyl ester of phosphono acetic acid were also obtained by action of thionyl chloride on neutral esters (Scheme 2). Table 2 shows the constants of the compounds obtained. There are 2 tables and 3 references 1 of which is Soviet.

ASSOCIATION: Voyennaya akademiya khimicheskoy zashchity (Military Academy of Chemical Protection)

SUBMITTED: December 10, 1957

Card 3/3

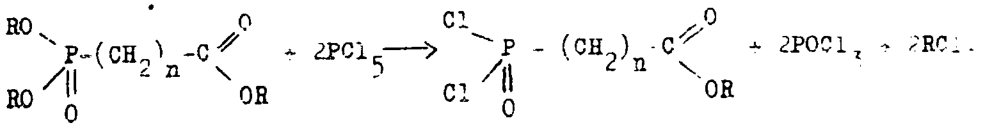
SOV/79-29-2-48/71

AUTHORS: Petrov, K. A., Maklyayev, F. L., Korshunov, M. A

TITLE: Acid Halides of the Esters of Phosphonocarboxylic Acid (Galoidangidridy efirov fosfonkarbonovykh kislot). II. Acid Dichlorides of the C-Alkyl Esters of Phosphonocarboxylic Acid (II. Dikhlorangidridy C-alkilovykh efirov fosfonkarbonovykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 585-588 (USSR)

ABSTRACT: In the present paper it was found that the reaction of PCl_5 obtained with an excess with the neutral esters of phosphonoacetic and β phosphonopropionic acid leads to the acid dichlorides of the C-alkyl esters of these acids:



The yield was 68-85 %. The ester group at the carbon is replaced neither by an excess of PCl_5 nor by chlorine at higher temperatures

Card 1/2

SOV/79-29-2-48/71

Acid Halides of the Esters of Phosphonocarboxylic Acid. II. Acid Dichlorides of the C-Alkyl Esters of Phosphonocarboxylic Acid

The possibility of the synthesis of the P-mono and P,P-acid dichlorides of phosphonocarboxylic acids is apparently due to the different, difficult substitution of chlorine for the two ester groups at phosphorus. In the passing of gaseous chlorine through the solution of PCl_3 and the triethyl ester of phosphonoacetic acid no acid dichloride of the C-ethyl ester of phosphonoacetic acid forms because chlorine substitutes not only the ester groups at phosphorus but also the methylene group at the phosphonoacetic ester under formation of acid dichloride of the C-ethyl ester of phosphonodichloroacetic acid (57%) (Scheme 2). This compound is a colorless liquid, soluble in organic solvents which irritates the mucosa. The data of analysis correspond to the acid dichloride of the ethyl ester of phosphonodichloroacetic acid. The position of the ester group within the acid dichloride is proved by its reaction with hydrogen fluoride or potassiumbifluoride, which leads to the formation of the ethyl ester of dichloroacetic acid (Scheme 3) where the cleavage takes place at the C-P binding

SUBMITTED: December 10 1957

Card 2/2

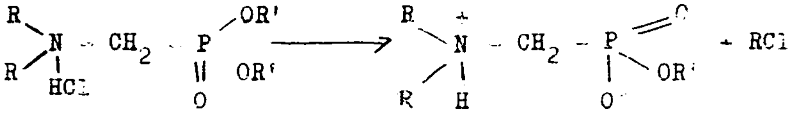
SOV/79-29-2-49/71

AUTHORS: Petrov, K. A., Maklyayev, F. L., Bliznyuk, N. K.

TITLE: Synthesis of the Acid Esters of Dialkylaminoalkyl Phosphonic Acids (Sintez kislykh efirov dialkilaminoalkilfosfonovykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 588-591 (USSR)

ABSTRACT: In the present paper some hydrohalides of the aminomethyl phosphonates were synthesized and their conversion into the inner salts was performed by a simple method. This conversion is carried out by a thermal cleavage of the hydrochlorides of dialkylaminoalkyl phosphonates. The hydrochlorides of dialkylaminomethyl phosphonates separate no alkyl halides and alkenes at the expense of the dealkylation of the amino group, in contrast to those of the amines in the thermal cleavage, and are transformed into inner salts of the dialkylaminoalkyl phosphonates under separation of alkyl halide at the expense of the chlorine ion and the radicals of the ester groups.



$$R_2\underset{HCl}{N}-CH_2-\underset{O}{\overset{\|}{P}}(OR')_2 \longrightarrow R_2\overset{+}{\underset{H}{N}}-CH_2-P(=O)(O^-)(OR') + RCl$$

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SOV/79-29-2-49/71

Synthesis of the Acid Esters of Dialkylaminoalkyl Phosphonic Acids

Thus, e.g. in the cleavage of diethylaminomethyldiethyl phosphonate ethyl chloride is quantitatively separated under formation of the monoethyl ester of diethylaminomethyl phosphonic acid in crystalline state. The process of separation of the alkyl groups is shown e g. in the case of thermal cleavage of the hydrochlorides of the neutral esters of dialkylaminomethyl phosphonic acids with different alkyls at the phosphonium and nitrogen atom (Scheme 2). Similar results were obtained also in the thermal cleavage of the hydrochlorides of the diethyl ester of dimethylaminomethyl phosphonic acid (Scheme 3) The aqueous solutions of the monoesters react neutrally, which indicates their special structure. The fluohydrate of the neutral esters of dialkylaminomethyl phosphonic acid are, in contrast to the hydrochlorides, thermally stable compounds. The hydrochlorides and hydrofluorides of dialkylaminomethyl phosphonates were obtained by the action of gaseous hydrohalides on the esters solved in organic solvents.- There are 6 references, 5 of which are Soviet.

SUBMITTED: December 10, 1957

Card 2/2

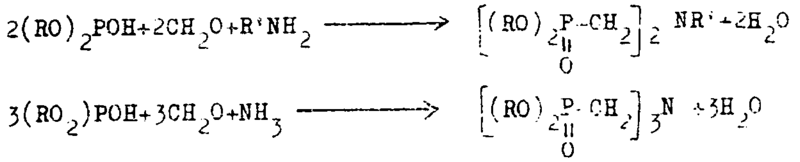
SOV/79-29-2-50/71

AUTHORS: Petrov, K. A., Maklyayev, F. L., Bliznyuk, N. K.

TITLE: Synthesis of Aminodi- and Aminotriphosphonates (Sintez aminodifosfonatov i aminotrifosfonatov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 2, pp 591-594 (USSR)

ABSTRACT: In completion of earlier syntheses of the aminophosphonates (Refs 1-4) the synthesis of aminodi- and aminotriphosphonates was carried out in this paper according to that of aminomonophosphonates by reaction of dialkylphosphites with ammonia (primary amines) and formaldehyde:



$$2(RO)_2POH+2CH_2O+R'NH_2 \longrightarrow \left[(RO)_2\underset{\underset{O}{\|}}{P}-CH_2\right]_2NR'+2H_2O$$

$$3(RO_2)POH+3CH_2O+NH_3 \longrightarrow \left[(RO)_2\underset{\underset{O}{\|}}{P}-CH_2\right]_3N+3H_2O$$

The authors varied the ratios of the reagents and the reaction conditions. E.g. in treating a mixture of dibutylphosphite and methyl amine (2:1 mol) with the calculated amount of formaldehyde solution the bis-(dibutylphosphonium) trimethylamine formed in a yield of 75 %. In the action of formaldehyde on a mixture of phosphite and

Card 1/2

Synthesis of Aminodi- and Aminotriphosphonates SOV/79-29-2-50/7

aqueous solution of ammonia the bis-(dialkylphosphonium)dimethyl and tri-(dialkylphosphonium)trimethylamine forms. The reaction in aqueous solution leads to partial saponification of the initial phosphite, which unfavorably influences the yield and separation of the final products. The reaction mixture must be distilled over in vacuum in a pure state, free from acid components, otherwise the aminodi- and aminotriphosphonates would decompose. After the reaction the mixture must be neutralized with alkali lye in order to extract the formed aminophosphates with organic solvents, which takes place without decomposition. The pure aminophosphates are easily distillable and thermally stable. Aminopolyphosphonates are equally stable in hydrolysis. The properties of the synthesized compounds are listed in a table. The neutral esters of the corresponding aminopolyphosphonic acids may be employed like diphosphonates as heat-resistant lubricants, plasticizers, and hydraulic liquids. - There are 1 table and 7 references, 5 of which are Soviet.

SUBMITTED: December 10, 1957

Card 2/2

S/079/60/030/06/05/009
B002/B016

5.3630

AUTHORS: Petrov, K. A., Maklyayev, F. L., Bliznyuk, N. K.

TITLE: Diphosphonates. 3. Synthesis of O- and S-Bisphosphonates

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1960-1964

TEXT: In the present paper the synthesis of compounds of the type $[(RO)_2P(O)(CH_2)_n]_2O$ and $[(RO)_2P(O)(CH_2)_n]_2S$ is described. So far, there are but little data available on it, since its complete performance has met with difficulties. It is generally based on an alkylation of diethyl sodium phosphite by means of dichloro and dibromo-dimethyl ethers. The resultant precipitate is difficultly separated from the solution, but a distillation without preceding separation involves further interaction of the NaCl or NaBr salts formed in the reaction with the diphosphonate, in which connection the disodium salts of the ethers result. The formation of these sodium salts is confirmed by the alkylation reaction (Refs. 1,2,5) of sodium dialkyl phosphites by means of esters of alkyl phosphinic and diphosphinic acids, which was already known to the

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Diphosphonates. 3. Synthesis of O- and S-Bisphosphonates

S/079/60/030/06/05/009
B002/B016

authors. The synthesis of the O- and S-diphosphonates is now studied on the reaction of sodium dialkyl phosphites with dichloro-dimethyl- and β,β'-dichloro-diethyl ethers, further with dichloro-dimethyl- and β,β'-dichloro-diethyl sulfides. In all cases the esters of the diphosphonic acid were obtained. The afore-mentioned difficulties when separating the reaction product were eliminated by adding so much water, that the resultant salt is dissolved. The purely organic layer was washed out with alkali and water. To prevent decomposition after the distillation, the latter must be performed on a small quantity of anhydrous Na_2CO_3 or K_2CO_3. The resultant O- and S-bisphosphonates represent high-boiling, thermostable, viscous liquids which are not or only sparingly soluble in water, but well soluble in organic solvents. The properties of the compounds synthesized are presented in the table. The following compounds were obtained: Bis(diisopropyl phosphono)dimethyl ether, yield 70%; bis(dibutyl-phosphono) dimethyl ether, 69.3%; bis(diisopropyl-phosphono) diethyl ether, 37.8%. By slowly adding Chlorex during the latter reaction, the yield could be increased up to 57.2%. Bis(dibutyl-phosphono)-

X

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Diphosphonates. 3. Synthesis of O- and S-Bisphosphonates

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B002/B016

diethyl ether, 46.8%, and the corresponding sulfides with the yields: bis(diethyl-phosphono)dimethyl sulfide 57%, bis(dibutyl-phosphono)dimethyl sulfide 50.8%, the tetraethyl ester of diphosphono-dimethyl sulfide 71%, bis(diisopropyl-phosphono)diethyl sulfide 39.5%, and bis(dibutyl-phosphono)diethyl sulfide 35.2%. There are 1 table and 6 references: 5 Soviet and 1 American.

SUBMITTED: May 26, 1959

Card 3/3

S/079/60/030/05/42/074
B005/B016

5,3630

AUTHORS: Petrov, K. A., Maklyayev, F. L., Bliznyuk, N. K.

TITLE: Diphosphonates. I. Esters of Methylene Diphosphonic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1602-1608

TEXT: The authors of the present paper investigated the alkylation of sodium dialkyl phosphites with chloro-methyl-phosphinic esters (Michaelis-Becker Reaction). It was possible to clarify the side reactions which accompany this reaction. In some cases, the yield of alkylation products (tetraalkyl methylene diphosphonates) could be raised. When treating sodium diethyl phosphite with the diethyl ester of chloro-methyl-phosphinic acid, a considerable quantity of a solid substance which is not distillable, and substances with a lower boiling point than that of the diphosphonate result in addition to the corresponding diphosphonate. The authors indicated that the solid product is a mixture of the sodium salts of the esters of methylene diphosphonic acid, ethyl phosphinic acid, and chloro-methyl-phosphinic acid. The low-boiling liquid by-product mainly consists of the diethyl esters of ethyl- and chloro-methyl phosphinic

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Diphosphonates. I. Esters of Methylene Diphosphonic Acid

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B005/B016

acid. The formation of these by-products is due to the alkylation of the sodium dialkyl phosphites by the resultant esters of the alkyl-phosphinic acids (Ref. 5). In a schematical survey, the equations for the formation of all possible products of reaction of sodium diethyl phosphite with the diethyl ester of chloro-methyl-phosphinic acid are summarized. This reaction was accomplished under considerably varied conditions. The separation of the reaction products encountered with great difficulties. The procedure of separation is described in detail. The yield in diethyl phosphonate was 30-50% depending on the reaction conditions, calculated for the initial sodium diethyl phosphite. The structure of the by-products is given. In some cases, the alkylation of sodium dialkyl phosphite by the product of the principal reaction, which represents a disturbing side-reaction, may be checked to a large extent by choosing suitable conditions; a complete elimination of this side reaction is hardly possible. The chloro-methyl-phosphinic esters which were used as initial products for the synthesis of methylene diphosphonates were obtained by esterification of the corresponding diacid chlorides with alcohols. By some modifications of the reaction conditions of a method described in publications (Ref. 7), the yield of the esterification could be increased to 90-95%. Table 1

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Diphosphonates. I. Esters of Methylene Diphosphonic Acid

S/079/60/030/05/42/074
B005/B016

presents 5 esters of chloro-methyl-phosphinic acid which have not yet been described. Boiling point, refractive index, density and molecular refraction are given for each ester. In an experimental part, all reactions performed are described in detail. In Table 2 yields and P- and Cl-contents are given for 4 esters from Table 1. A. Ye. Arbuzov is mentioned in the present paper. There are 2 tables and 7 references, 3 of which are Soviet.

SUBMITTED: May 26, 1959

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S/079/60/030/05/43/074
B005/B016

5.3630

AUTHORS: Petrov, K. A., Maklyayev, F. L., Bliznyuk, N. K.

TITLE: Diphosphonates. II. Synthesis of Esters of Ethylene- and Methyl Ethylene Diphosphonic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1608-1614

TEXT: The authors of the present paper showed that the synthesis of esters of ethylene diphosphonic acid may be performed by means of the Michaelis-Becker reaction. All difficulties connected with the use of this reaction could be overcome by determining the optimum temperature range and the optimum order in mixing the reagents. On reaction of sodium dialkyl phosphites with 1,2-dihalogen alkanes, olefins only result at too high temperatures whereas at low temperatures mainly the corresponding diphosphonates are formed. The order observed when combining the reagents exerts considerable influence upon the direction of the reaction of sodium diethyl phosphite with 1,2-dichloro ethane. The best yield of the corresponding diphosphonate (57.5%) is obtained by adding slowly the benzenic solution of sodium diethyl phosphite to dichloro ethane heated to 50-55°.

Card 1/3

Diphosphonates. II. Synthesis of Esters of Ethylene- and Methyl Ethylene Diphosphonic Acid S/079/60/030/05/43/074 B005/B016

The chloro-ethyl phosphinic esters do not result in these reactions since the mobility of the halogen in these esters is higher than in the 1,2-dihalogen alkane. In the reaction of sodium diethyl phosphite with dichloro ethane, the diethyl ester of ethyl phosphinic acid and a mixture of salts of ethylene diphosphonic esters and ethyl phosphinic esters are obtained as by-products. The formation of these by-products is due to alkylation of sodium diethyl phosphite by the tetraethyl ester of ethylene diphosphonic acid which results as principal product of the reaction, or by the diethyl ester of ethyl phosphonic acid. The corresponding reaction schemes as well as the structural proof of these side-products are given. By the afore-mentioned alkylation of sodium dialkyl phosphites with dichloro ethane, also the tetraisopropyl ester of ethylene diphosphonic acid was synthesized which has not yet been described in publications. By the reaction of sodium dialkyl phosphites with allyl phosphonates in the presence of sodium alcoholates, esters of methyl ethylene diphosphonic acid were produced. The rate of this reaction does not so much depend on temperature but rather on the quantity of the alcoholate acting as a catalyst. Finally, esters of allyl phosphinic acid were formed by treating sodium dialkyl phosphites with allyl bromide. This reaction has

!X

Card 2/3

Diphosphonates. II. Synthesis of Esters of Ethylene- and Methyl Ethylene Diphosphonic Acid S/079/60/030/05/43/074 B005/B016

been investigated previously (Ref. 8). By modification of some reaction conditions, the yield of this synthesis could be increased from 57 to 72.5%. In an experimental part, all syntheses performed are described in detail. In the present paper, M. I. Kabachnik (Ref. 7) is mentioned. There are 9 references, 7 of which are Soviet.

SUBMITTED: May 26, 1959

Card 3/3

87533

S/079/60/030/012/018/027
B001/B064

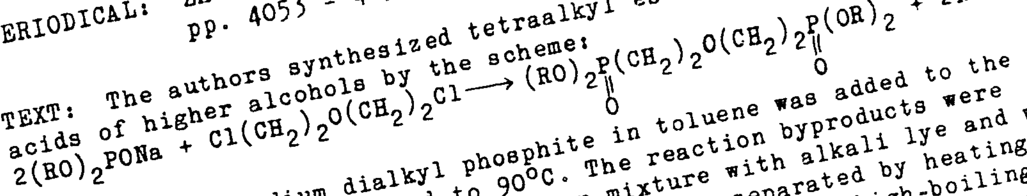
53630

AUTHORS: Maklyayev, F. L., Bliznyuk, N. K., and Yeremin, G. I

TITLE: Diphosphonates. IV. Synthesis of the Tetraalkyl Esters of Some Diphosphonic Acids

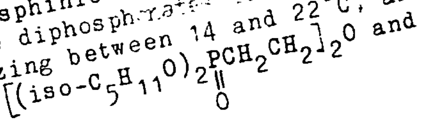
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 12, pp. 4053 - 4055

TEXT: The authors synthesized tetraalkyl esters of the diphosphonic acids of higher alcohols by the scheme:



$$2(RO)_2PONa + Cl(CH_2)_2O(CH_2)_2Cl \longrightarrow (RO)_2\underset{\underset{O}{\|}}{P}(CH_2)_2O(CH_2)_2\underset{\underset{O}{\|}}{P}(OR)_2 + 2NaCl$$

A solution of sodium dialkyl phosphite in toluene was added to the dichloro diethyl ester heated to 90°C. The reaction byproducts were separated by washing out the reaction mixture with alkali lye and water, and the esters of alkyl phosphinic acids were separated by heating the product in high vacuum. The diphosphonates obtained are high-boiling viscous liquids, crystallizing between 14 and 22°C, and readily soluble in organic solvents. Only

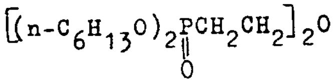


$[(iso\text{-}C_5H_{11}O)_2\underset{\underset{O}{\|}}{P}CH_2CH_2]_2O$ and

87533

Diphosphonates. IV. Synthesis of the Tetra-alkyl Esters of Some Diphosphonic Acids

S/079/60/030/012/018/027
B001/B064



$[(n\text{-}C_6H_{13}O)_2\underset{\underset{O}{\|}}{P}CH_2CH_2]_2O$ can be distilled. The thermal decomposition of the diphosphonates by heating at 290° during five months, proceeded under the formation of the respective unsaturated hydrocarbons and increase of the acidity of the radical. The degree of decomposition of diphosphonate was determined by titration with 0.1 N alkali lye, before and after heating. The dialkyl phosphites of the higher alcohols which are used as initial products, were obtained by data of B. A. Arbuzov (Ref.7). With the use of a solvent and by removing the HCl from the reaction sphere by bubbling with dry air, it was possible to raise the dioctyl phosphite yield to between 45 and 81% and the dinonyl phosphite yield to 83%. There are 1 table and 8 references: 5 Soviet, 2 US, and 1 British.

PRESENTED: February 2, 1960

Card 2/2

87534
S/079/60/030/012/019/027
B001/B064

53630

AUTHORS: Petrov, K. A., Maklyayev, F. L., Neymysheva, A. A., and
Bliznyuk, N. K.

TITLE: Synthesis of N-Chloro Phosphamides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 12,
pp. 4060 - 4064

TEXT: The authors synthesized various N-chloro phosphamides and developed a general method. The initial phosphamides were obtained by reacting the amine with the corresponding acid chlorides in ether or chloroform (Refs.2-4). Table 1 lists the constants of the hitherto unknown initial phosphamides. The substitution of chlorine for the hydrogen atoms in the alkyl amide group of phosphamide took place under the action of an excessive alkaline solution of sodium hydrochlorite upon the chloroform solution of the respective phosphamide. The dichloro amides were obtained by chlorination of phosphamide with gaseous chlorine in the presence of sodium acetate or zinc oxide in carbon tetrachloride. The N-chloro phosphamides are obtained by extracting the reaction mass

X

Card 1/3

Synthesis of N-Chloro Phosphamides

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S/079/60/030/012/019/027
B001/B064

with chloroform or CCl_4, by drying the extracted product, and thorough removal of the solvent at room temperature in vacuum (without subsequent distillation). The diphenyl amido phosphate which is insoluble in water and CCl_4, was chlorinated with gaseous chlorine in a mixture of CCl_4 and water (1 : 2) in the presence of an excess of sodium acetate. All N-chloro phosphamides have a strong odor, yellowish liquids, soluble in organic solvents (some of them in water). Under the action of a chloroform solution of N-chloro phosphamide upon a potassium iodide solution in acetic acid medium, iodine is quantitatively separated, which is titrated with hyposulfite; thus, it is possible to determine active chlorine. N-chloro phosphamides (derivatives of methyl phosphinic acid) proved to be the least stable. They decompose already after 24 h, the content of active chlorine being reduced by 1-2%. N-chloro methyl-amido diphenyl phosphate in which the chlorine content did not change during 25 days, proved to be the most stable. The content of active chlorine in N-dichloro dimethyl diamido phenyl phosphate was reduced by 3% within 30 days. The constants of the N-chloro phosphamides are given in Table 2. V. I. Viryukin (1956), V. M. Grigor'yev (1957), and O. A. Pan'shin (1957)

Synthesis of N-Chloro Phosphamides

87534
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B001/B064

took part in the experiments. There are 2 tables and 4 references: 1 Soviet, 1 US, 1 British, and 1 German.

SUBMITTED: February 15, 1960

X

Card 3/3

21084

S/079/61/031/003/007/013
B113/B207

5.3630

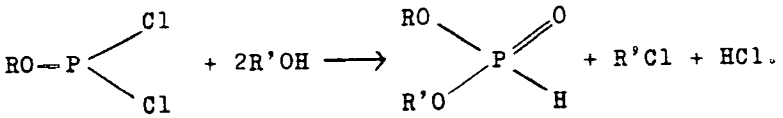
AUTHORS: Maklyayev, F. L., Druzin, M. I., and Palagina, I. V.

TITLE: Esters of phosphoric acids with different radicals. I. Synthesis of dialkyl phosphites with different radicals

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 3, 1961, 895-897

TEXT: Dialkyl phosphites with different radicals have hitherto not been described, with the exception of the four representatives of this class obtained by ester interchange of the diethyl ester of phosphorous acid (yield of 35-45%). The authors describe a new synthesis of these dialkyl phosphites by reaction of the respective alcohol with alkyl dichloro phosphite and simultaneous removal of hydrogen chloride from the reaction mixture:

X



Due to the high reactivity of the halogen atom in alkyl dichloro phosphite,

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S/079/61/031/003/007/013
B1[illegible]/B207

Esters of ...

this reaction proceeds extremely vigorously under certain conditions, separating alkyl halide and hydrogen chloride. The yield in unsymmetric dialkyl phosphites is 65-75%. To avoid ester interchange of the dialkyl phosphites, it is necessary to use an alkyl dichloro phosphite, whose alkoxy radical contains more carbon atoms than that of the alcohol used in the reaction. Temperature and a rapid separation of hydrogen chloride at low temperature by blowing through dry air in vacuo, are of great importance. The mixed dialkyl phosphites of higher alcohols must be distilled in a high vacuum to avoid ester interchange since heating at high temperature leads to a mixture of products. A table lists the obtained dialkyl esters of phosphorous acid. They are mobile, weakly smelling liquids which are readily soluble in organic solvents but only slightly in water. The compounds obtained were used to synthesize chloro phosphates, [redacted] and phosphates with different radicals. There are 1 table and 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: G. M. Kosolapoff, J. Am. Chem. Soc. 73, 4989 (1951).

SUBMITTED: March 1, 1960

Card 2/3

21084

S/079/61/031/003/007/013
B118/B207

Esters of ...

Эфиры ①	Температура кипения (давление в мм) ②	d_4^{20}	n_D^{20}	% P найдено ③	% P вычислено ④	MR_D найдено ③	MR_D вычислено ④	Выход (в %) ⑤
$(C_2H_5O)(C_4H_9O)POH$ *	71—73°(2)	1.018	1.416	18.56, 18.60	18.63	41.07	41.02	69
$(C_2H_5O)(C_8H_{17}O)POH$ **	114—116 (1)	0.963	1.428	13.73, 13.91	13.93	59.33	59.47	65
$(C_4H_9O)(C_8H_{17}O)POH$	112—114 (0.4)	0.952	1.431	12.3, 12.1	12.37	68.04	68.03	68.5
$(C_4H_9O)(C_5H_{11}O)POH$	120—121 (8)	0.973	1.420	14.78, 14.85	14.88	54.14	54.05	74.3
⑥(изо-$C_5H_{11}O)(C_6H_{13}O)POH$	108—110 (0.3)	0.9570	1.429	13.08, 12.98	13.12	63.63	63.41	73.8
⑥(изо-$C_5H_{11}O)(C_7H_{15}O)POH$	105—107 (0.2)	0.9535	1.431	12.60, 12.32	12.37	67.92	68.03	68.2
⑥(изо-$C_5H_{11}O$)(вт.-$C_8H_{17}O)POH$	111—113 (0.2)	0.942	1.429	11.65, 11.60	11.72	72.30	72.64	52.5
⑥(изо-$C_5H_{11}O$)(н.-$C_8H_{17}O)POH$	120—121 (0.2)	0.948	1.432	11.54, 11.68	11.72	72.24	72.64	75.0

Legend to Table: 1) Ester, 2) boiling point (pressure in mm), 3) found, 4) calculated, 5) yield, 6) iso-.

Card 3/3

MAKLYAYEV, F.L.; DRUZIN, M.I.; PALAGINA, I.V.

Esters of phosphorus acids with different radicals. Part 2: Synthesis of dialkylchlorophosphates and trailkyl phosphates containing different radicals. Zhur. ob. khim. 31 no.4:1312-1315 Ap '61.
(MIRA 14:4)

(Phosphoric acid)

MAKLYAYEV, F.L.; DRUZIN, M.I.; PALAGINA, I.V.

Esters of phosphorus acids with different kinds of radicals. Part 3: Synthesis of alkyl phosphonates with different kinds of radicals. Zhur.ob.khim. 31 no.6:2012-2013 Je '61. (MIRA 14:6)
(Phosphonic acid)

MARKOV, S.M., MAKLYAYEV, F.L.

The use of some organophosphorus compounds as therapeutic agents and prophylactics in radiation sickness.

Khimiya i Primeneniye Fosfororganicheskikh Soyedineniy (Chemistry and application of organophosphorus compounds) A. YE. ARBUZOV, Ed.
Publ. by Kazan Affil. Acad. Sci. USSR, Moscow 1962, 632 pp.

Collection of complete papers presented at the 1959 Kazan Conference on Chemistry of Organophosphorus Compounds.

MAKLYAYEV, F.L.; DRUZIN, M.I.; PALAGINA, I.V.; ALEKSANDROVA, R.Ya.;
PROKHODTSEVA, V.K.; KHAMIDULINA, R.A.

Esters of phosphorus acids with different radicals. Part 4:
Synthesis of alkylaryl phosphites, chloro- and fluorophosphates.
Zhur.cb.khim. 32 no.10:3421-3425 O '62. (MIRA 15:11)
(Phosphorus acids)
(Esters)

MAKLYAYEV, F.L.; SMIRNOV, I.V.; MARKOV, S.M.; LOSHADKIN, N.A.; ANIKIYENKO, K.A.

Reactivity of the nitrophenyl esters of phosphoric and phosphinic acids. Zhur.ob.khim. 33 no.12:3833-3838 D '63. (MIRA 17:3)

MAKLYAYEV, F.L.; PETROVA, G.B.

Secondary and tertiary amines with different kinds of radicals.
Zhur.ob.khim. 33 no.12:3926-3928 D '63. (MIRA 17:3)

L 06514-67 EWT(m)/EWP(j) RM

ACC NR: AP7000478 SOURCE CODE: UR/0079/66/036/006/1105/1113

LOSHADKIN, N. A., MARKOV, S. M., POLEKHIN, A. M., NEYMYSHEVA, A. A., MAKLYAYEV, F. L., KNUNYANTS, I. L.

38
36
B

"Nucleophilic Substitution at the Tetrahedral Phosphorus Atom. III. Relationship between the Structure and Reactivity of Phosphorus-Containing Compounds. Role of the Vacant 3d-Orbitals of the Phosphorus Atom"

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 6, 1966, pp 1105-1113

Abstract: A study of the alkaline hydrolysis of nitrophenol esters and halides of phosphorus acids indicated that the free energy change is less sensitive to changes in the influence of substituents bonded to the phosphorus atom than the activation energy and steric factor. The effects of changes in the structure of the substituent were investigated: effect of replacement of the oxygen atom in the P=O group by a sulfur atom; effect of the structure of alkyl groups bonded to the phosphorus atom; effect of replacement of an alkyl group bonded to the phosphorus atom by an alkoxy group; effect of structure of the alkoxy group. The standard deviations of the rate constant of hydrolysis, activation energy, and steric factor calculated indicated a significant difference of these quantities, depending upon the structure of the organophosphorus compound. The introduction of substituents capable of participating in p_{pi}-d_{pi} conjugation (RO group) next to the phosphorus atom leads to a relatively

Card 1/2 UDC: 547.18:541.63 + 543.878

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L 06514-67

ACC NR: AP7000478

2

small, but significant increase in the energy and entropy of activation. The presence of a compensation dependence of the change in the activation energy and entropy of alkaline hydrolysis of nitrophenyl esters and fluorides of phosphorus acids was demonstrated. Orig. art. has: 3 figures and 3 tables. [JPRS: 37,023]

ORG: none

TOPIC TAGS: activation energy, organic phosphorus compound, hydrolysis

SUB CODE: 07 / SUBM DATE: 27Jul64 / ORIG REF: 017 / OTH REF: 019

Card 2/2 LS

PERVOMAYSKIY, G.S.; MAKLYGIN, M.V.

Attacking activity of the tick Hyalomma asiaticum asiaticum P.Sch. et E.Schl. under laboratory conditions. Zool.zhur. 38 no.3:394-400 Mr '59. (MIRA 12:4)

1. S.M.Kirov Military Medical Academy (Leningrad).
(Ticks)

MAKLYGIN, M.V.; ALEKSEYEV, A.N.

Variation of gas exchange in the tick Hyalomma asiaticum asiaticum P.Sch. et Schl, 1929 under different environmental conditions. Zool.zhur. 39 no.2:297-299 F '60. (MIRA 13:6)

(Ticks) (Respiration)

PRYANISHNIKOV, G.I., inzh.; MAKLYUCHENKO, A.K., inzh.

UPM-1 incline loader. Ugol' 33 no.12:24-25 D '58. (MIRA 11:12)

1. Shakhta "Kapital'naya-2."
(Coal handling machinery)

MAKLYUK, B.K.

In the Azov and Kuban floodlands. Zashch. rast. ot vred. i bol. 6 no.4:8 Ap '61. (MIRA 15:6)

1. Nachal'nik Slavyanskogo proizvodstvennogo uchastka.
(Kuban--Plants, Protection of)
(Azov Sea region--Plants, Protection of)

MAKLYUK, B.K.

In the floodlands of the Sea of Azov region. Zashch. rast. ot vred. i bol. 8 no.4:10-11 Ap '63. (MIRA 16:10)

1. Nachal'nik Slavyanskogo proizvodstvennogo uchastka, Krasnodarskiy kray.

(Azov Sea region—Locusts—extermination)

MAKLYUKOV, ILYA I.

SHUMAYEV, Fedor Grigor'yevich; MAKLYUKOV, Il'ya Ivanovich; MIKHELEV, A.A., dotsent, retsenzent; NOVITSKIY, B.F., dotsent, retsenzent; GINZBURG, A.S., professor, spetsredaktor; KHMEL'NITSKAYA, A.Z., redaktor; KISINA, Ye.I., tekhnicheskiy redaktor

[Industrial ovens for baking bread and confectionery] Promyshlennye pechi khlebopekarnogo i konditerskogo proizvodstva. Moskva, Pishchepromizdat, 1957. 353 p. (MIRA 10:11)
(Ovens)

MAKLYUKOV, M.

Device for measuring frequency characteristics. Radio no.9:43-47 S '61. (MIRA 14:10)

(Frequency measurements)
(Radio measurements)

L 44567-66 EWT(1) SCTB DD

ACC NR: AP6030593 (A) SOURCE CODE: UR/0413/66/000/016/0076/0076

INVENTOR: Maklyukov, M. I.; Kalashnikov, V. P.; Zaykin, M. G.; Baburin, V. A.; Gavrikov, Yu. N.; Utyamyshev, R. I.

36
B

ORG: none

TITLE: Multichannel device for recording human physiological functions. Class 30, No. 185005

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 76

TOPIC TAGS: human physiology, body temperature, skin galvanic reaction, respiratory system, biometrics, biotelemetry

ABSTRACT: An Author Certificate has been issued for a device used to record human physiological functions. Its components include amplifiers of biopotentials, high- and low-frequency filters, a body and skin temperature monitor, a circuit recording respiratory rate and respiratory movements of the thorax, a circuit measuring skin galvanic reactions, and a stabilized power source. Increased operating reliability and accuracy of several simultaneous measurements are achieved by suppressing synphased interference and by assuring necessary signal amplification using cascaded low-frequency amplifiers. Some signals are fed

Card 1/2 UDC: 615.471:612.2:621.38

L 44567-66

ACC NR: AP6030593

O

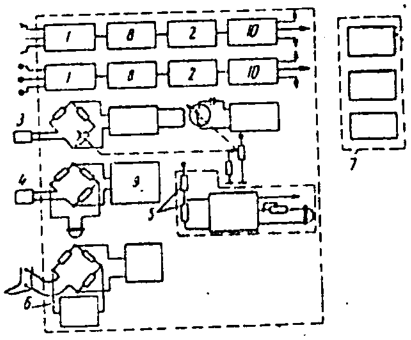

Fig. 1. Device for recording human physiological functions

1 - Amplifiers of biopotentials; 2 - high- and low-frequency filters; 3 - body temperature monitor; 4 - skin temperature monitor; 5 - circuit recording respiratory rate and thoracic movements; 6 - circuit recording skin galvanic reactions; 7 - stabilized power source; 8 - low-frequency amplifiers; 9 - transformer; 10 - output stages.

to bridges, in which the arms are automatically balanced by controlling each arm using a tube grid connected via resistance to the cathode. A variation of the above is distinguished by the fact that the temperature measurement bridge is fed by a synchro. A second variation is designed to record incoming signals from measurement channels via telemetry, and uses various types of oscillographs. It contains output stages with current and voltage switches. A general diagram of the system is given in Fig. 1. Orig. art. has: 1 figure. [CD]

SUB CODE: 06/ SUBM DATE: 28Jan65/ ATD PRESS: 5079

Card 2/2

MAKLYUKOV, V.I.

Dependability of baking oven heating tubes. Khleb.i kond.prom.
1 no.7:5-9 Jl '57. (MIRA 10:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khlebopekarnoy
promyshlennosti.
(Ovens)

MAKLYUKOV, V. I., Candidate Tech Sci (diss) -- "Investigation of thermal exchange in the fire-boxes of bread-baking ovens with steam tubes". Moscow, 1959. 15 pp (Min Higher Educ USSR, Moscow Tech Inst of the Food Industry), 150 copies (KL, No 25, 1959, 134)

MAKLYUKOV, V.I.

Studying heat exchange in the furnaces of bakery steam pipe ovens. Trudy TSNIIKHP no.8:60-69 '60. (MIRA 15:8)
(Heat—Transmission) (Furnaces)

MAKLYUKOV, V.I.

Use of gas burners with automatic blocking in bakery ovens.
Trudy TSNIIKHP no.10:33-40 62.

MIRA 18:2

SOV/21-59-6-1/27

16 (1)

AUTHOR: Makmak, K. M.

TITLE: On One Property of Functions with Limited Boundary Rotation

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi RSR, 1959, Nr 6, pp 567 - 570 (USSR)

ABSTRACT: The author establishes the boundaries of the change in curvature of the level lines during the mapping of a unit circle by functions with limited boundary rotation. As the point of departure in this work, the author uses the structural formula of functions with limited boundary rotation formulated by V. Paatero [Ref. 1 - 4]:

$$f(z) = \int_0^z \exp\left\{-\frac{1}{\pi}\int_{-\pi}^{\pi} \ln(1-\zeta e^{-i\theta})\, d\beta(\theta)\right\} d\zeta, \qquad (1)$$

where $\beta(\theta)$ is real function of a limited variation at $[-\pi, \pi]$, normalized by the conditions that

Card 1/3

$$\int_{-\pi}^{\pi} d\beta(\theta) = 2\pi, \quad \int_{-\pi}^{\pi} | d\beta(\theta) | = \alpha, \quad \beta(-\pi + 0) = \beta(-\pi) = 0.$$

The sign for logarithm is understood under the main branch. The integral has been taken in the sense formulated by Stiltyes. By way of a series of calculations, which among other things make use of the variational method of V. A. Zmorovich [Ref. 7], the author finds the estimates (5), which are exact and can be obtained only by functions of form

$$f_0(z) = \int_0^z \frac{(1-\zeta e^{i\gamma})^{2\lambda_2} \cdot (1-\zeta e^{-i\gamma})^{\frac{\alpha}{2\pi} - 1 - 2\lambda_2}}{(1-\zeta)^{2\lambda_1} \cdot (1+\zeta)^{\frac{\alpha}{2} + 1 - 2\lambda_1}} d\zeta, \qquad (6)$$

On One Property of Functions with Limited Boundary Rotation SOV/21-59-6-1/27

ASSOCIATION: Zaporozhskiy mashinostroitel'nyy institut (Zaporozhye Machine Building Institute)

PRESENTED: By B. V. Gnedenko, Member, AS UkrSSR

SUBMITTED: December 20, 1958

Card 3/3

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SOV/21-59-10-3/26

AUTHOR: Makmak, K.M.

TITLE: On Certain Properties of Functions With Limited Boundary Rotation. II.

PERIODICAL: Dopovidi Akademiyi nauk Ukrayins'koyi RSR, 1959, Nr 10, pp 1054-1059 (USSR)

ABSTRACT: The author solves the following three problems: the curvature fluctuation (V.A. Zmorovych) [Ref 1] defined according to the formula

$$\omega K(ze^{i\vartheta}) = \left|\left(\frac{1}{f(z)}\right)'\right|$$

the value of $[f'(z)] + [f'(-z)]$ (H.M. Holuzin) and the length of the circumference contour (L. Bieberbach) for functions with limited boundary rotation. The structural formula of these functions is expressed in the following way:

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SOV/21-59-10-3/26

On Certain Properties of Functions With Limited Boundary Rotation.
II.

$$f(z)=\int_{0}^{z}\exp\left\{-\frac{1}{\pi}\int_{-\pi}^{\pi}\ln\left(1-\zeta e^{i\theta}\right)d\beta(\theta)\right\}d', \qquad (1)$$

whereby $\beta(\theta)$ stands for the real function of limited variation on the segment $[-\pi,\pi]$ regulated by the conditions

$$\int_{-\pi}^{\pi}d\beta(\theta)=2\pi,\quad \int_{-\pi}^{\pi}\left[d\beta(\theta)\right]=d',\quad \beta(-\pi)=\beta(-\pi+0)=0.$$

Card 2/5

X