BRUKER, A. B.

USSR/Chemistry - Aromatics Nov 48
Chemistry - Copper

"Role of Copper in Obtaining Metallic Aromatics in the Diazo Test and Several Considerations on the Mechanism of Sandmeyer's Reaction," A. B. Bruker, F. L. Maklyayev, 3½ pp

"Dok Ak Nauk SSSR" Vol LXIII, No 3

If an inorganic arsenic compound serves as the initial product, copper must be present to obtain arsenous aromatic compounds, but, if an aromatic compound is arylated, reaction will proceed without copper. Formation of metallic aromatic compounds through diazo com- [redacted] 55/49T11

USSR/Chemistry - Aromatics (Contd) Nov 48

compounds has general outlines of Sandmeyer's reaction. Submitted by Acad A. N. Nesmeyanov 3 Sep 48.

55/49T11

[redacted]

BRUKER, B.A.

But abs BII
June 1953
Homocyclic

4
Chem
(2)

Interaction of methylbis-(2-hydroxypropyl)amine and of methylbis-(2-hydroxyethyl)amine with benzoic acid. K. D. Petrov and B. A. Bruker (*J. appl. Chem. USSR*, 1952, 25, 567—569).—The dibenzoates of both methylbis-(2-hydroxypropyl)amine (II) and of -(2-hydroxyethyl)amine (I) were obtained by heating the amines in xylene with BzOH. The dibenzoate of I (77% yield) has b.p. 204—206°/2—3 mm.; II gave a dibenzoate in 84% yield, b.p. 120°/10^{-4} mm. The compounds have been used as plasticisers for *poly*vinyl chloride. R. C. MURRAY.

AF
7-19-54

BRUKER, A. B.

Synthesis of aromatic compounds of antimony. VII. Preparation of *p*-fluorophenyl derivatives of antimony. A. B. Bruker. *Zhur. Obshchei Khim.* 27, 2223-6(1957); cf. *C.A.* 43, 4647*b*; preceding abstr.—To 28.5 g. $SbCl_3$ and 21.2 g. $CuCl_2$ in dil. HCl was added 16 g. p-$FC_6H_4NHNH_2$ and the mixt. stirred 3–4 hrs. yielding a ppt. which after washing with dil. HCl was dissolved in Me_2CO (much N is evolved), and the filtrate dild. with Et_2O and H_2O to yield 14–16% *p,p'-bis(fluorophenyl)stibonic acid*, does not m. 250°; this with 1:1 HCl gave $(p\text{-}FC_6H_4)_2SbCl_3$, m. 100°, rem. 149–50°, which with warm 1:1 HCl, a little KI, and a stream of SO_2 was converted to $(p\text{-}FC_6H_4)_2SbCl$, m. 65°, which with 5% NH_4OH gave $[(p\text{-}FC_6H_4)_2Sb]_2O$, m. 85°. The acidic filtrate from prepn. of R_3SbCl_2 on stirring 3–4 hrs. longer gave after addn. of NH_4Cl and concd. HCl a double salt $(p\text{-}FC_6H_4)SbCl_4.NH_4Cl$, which with H_2O gave 16% *p-fluorophenylstibonic acid*, does not m. 230°. This with aq. HCl gave after treatment with SO_2 in the presence of a little KI and extn. with Et_2O an unstated yield of p-$FC_6H_4SbCl_2$, m. 46–7°, which with 5% NH_4OH gave p-FC_6H_4SbO, does not m. 280°, which with AcOH gave an *acetate*, m. 120–1°. G. M. Kosolapoff

Distr: 4E4j/4E3d/4E2c(j)

2
2-May
3

[illegible]

[illegible] in contact with air yielding a pink [illegible] which was sepd and thoroughly [illegible] HCl and Me_2CO the Me_2CO ext after [illegible] diphenylstibonic [illegible] Ph_5SbCl_2, m. 175°, which in warm dil. HCl was treated with EtOH, filtered and treated with 1.2 gr atoms of KI and a stream of SO_2 yielding [illegible] Ph_5Sb [illegible] nitrate [illegible] diphenylstibonic acid [illegible] were treated with NH_4Cl in concd HCl [illegible] Ph_5Sb[illegible]NH_4Cl, a sparingly sol solid obtained in 20 [illegible] yield, which with H_2O gave phenylstibonic acid which, with [illegible] HCl a little KI and a stream of SO_2 was converted [illegible] Ph_5SbCl_2. The probable mechanism of the [illegible] reaction is discussed. [illegible]

BRUKER, AB

Synthesis of aromatic compounds of antimony. VIII. Preparation of 2-tolyl- and 5-naphthylantimony [illegible] acids. A. B. Bruker. [illegible] 27 [illegible] 1957. [illegible] To a soln. [illegible] MeC6H4SbCl2 in 155° [illegible] The filtrate treated with sat. NH4Cl in conc. HCl gave 3 g. yellow p-Me[illegible] [illegible] II [illegible] HCl gave [illegible] NH4Cl [illegible] with HCl [illegible]

Sbtr: 4E.j, 4Bjd, 4E2c(j).

A. B. BRUKER

The double salt gave 2,2'-dinaphthyl [illegible] HCl [illegible] 20 ml. 2N ml. HCl [illegible] 1 g. $CuCl_2$ 2 g. $FeCl_3$ [illegible] g. [illegible] $SbCl_5$ and [illegible] 4.5 g. 2-$C_{10}H_7NHNH_2$ [illegible] gave [illegible] III. IX. Preparation of aromatic antimony compounds by means of antimony penta chloride and phenylhydrazine. [illegible] T. 240 ml. H_2O and [illegible] gradually added 30 g. $SbCl_5$, 3.5 g. $FeCl_3$ and 28 g. [illegible] NH_2 HCl followed after 20 min. by 0.3 g. $CuCl_2$ in 10 ml. 1:2 HCl. After 50 hrs. stirring over 8 days the ppt. was sepd. and washed with 1:2 HCl, EtOH and Et_2O yielding 40 g. yellowish PhN_2Cl $PhNH_2Cl_5$ (I) which [illegible] [illegible] treated [illegible] KI [illegible]

[illegible] 2 g. [illegible] after [illegible] washed as above yielding [illegible] PhN_2Cl $PhNH_2Cl_5$ [illegible]

BRUKER, A.B.

Synthesis of aromatic antimony compounds. Part 9: Synthesis of aromatic antimony compounds with the aid of antimony pentachloride and phenylhydrazene. Zhur.ob.khim. 27 no.10:2700-2704 O '57. (MIRA 11:4)

(Antimony compounds) (Hydrazene)

BRUKER, A. B.,

79-2-16/64

AUTHORS: Bruker, A. B., Spiridonova, F. G., Sobolevskiy, L. Z.

TITLE: Investigation of the Reaction of Tetrafluoroethylene With Trichloroarsenic in the Presence of Aluminum Chloride (Issledovaniye reaktsii tetraftoretilena s trekhkhloristym mysh'yakom v prisutstvii khloristogo alyuminiya)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 350 - 355 (USSR)

ABSTRACT: In the present work the authors investigated the reaction of trichloroarsenic with tetrafluoroethylene. The interaction between trichloroarsenic and unsaturated compounds is only investigated in the example of the reaction with acetylene (references 2 - 7). It is less thoroughly investigated with ethylene. Ren'shou, Uor and Nekrasov (references 8 and 9) showed that on saturation of trichloroarsenic with ethylene in the presence of dehydrated aluminum chloride, under atmospheric pressure and at an ordinary temperature the formation of β-chloroethyldichloroarsine with a small yield takes place. The authors originally tried to perform the interaction between tetrafluoroethylene and trichloroarsenic under conditions analogous as in the reaction with ethylene. The results were negative. Just as negative were the attempts which were performed in an autoclave under pressure, but without aluminum chloride. Upon

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79-2-16/64

Investigation of the Reaction of Tetrafluoroethylene With Trichloroarsenic in the Presence of Aluminum Chloride

closer examination of this reaction it was found that in the interaction between trichloroarsenic and tetrafluoroethylene in the presence of aluminum chloride a substance is produced which contains carbon, fluorine, chlorine and arsenic. This substance was identified as the hitherto unknown pentafluoroethyldichloroarsine. Beside it another substance was eliminated from the reaction mixture which corresponds to 1,1-difluoro-2,2-dichloroethylene described in publications (reference 10). The theoretical yield of pentafluoroethyldichloroarsine according to the trichloroarsenic reacted through amounts to 70 %, according to the tetrafluoroethylene used in the reaction to 50-60%;

$$5CF_2 = CF_2 + 2AsCl_3 \xrightarrow{AlCl_3} 2CF_3CF_2AsCl_2 + CF_2 = CCl_2 \qquad (1)$$

The formation of pentafluoroethyldichloroarsine, as a result of reaction (1), instead of the expected tetrafluoro-β-chloroethyldichloroarsine indicated the difference of this process from the usual reaction in which trichloroarsenic is added to unsaturated compounds. The explanation for this lies in the capability of aluminum chloride to exchange the chlorine atom with fluorinated organic hydrocarbons against fluorine (references 11-15). It seems probable that in the observed case at first an exchange of halides between

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79-2-15/34

Investigation of the Reaction of Tetrafluoroethylene With Trichloroarsenic in the Presence of Aluminum Chloride

tetrafluoroethylene and aluminum chloride takes place.

$$CF_2 = CF_2 + AlCl_3 \longrightarrow AlF_2Cl + CF_2 = CCl_2 \quad (2)$$

As a confirmation of this may be considered the fact that in all these tests simultaneously with pentafluoroethyldichloroarsine, difluorodichloroethylene was separated in a ratio corresponding to that in equation (1). Further the formation of pentafluoroethyldichloroarsine and aluminum fluorodichlorides under interaction of tetrafluoroethylene with trichloroarsenic and aluminum difluorochloride takes place,

$$CF_2 = CF_2 + AlF_2Cl + AsCl_3 \xrightarrow{AlCl_3} CF_3CF_2AsCl_2 + AlFCl_2 \quad (3)$$

The resulting aluminum fluorodichloride may also enter an interaction with tetrafluoroethylene and again form aluminum difluorochloride.

$$CF_2 = CF_2 + 2AlFCl_2 \longrightarrow CF_2 = CCl_2 + 2AlF_2Cl \quad (4)$$

The schemes given sufficiently show that comparatively small amounts of aluminum chloride are sufficient for converting considerable amounts of tetrafluoroethylene to pentafluoroethylenedichloroarsine and difluorodichloroether (see table). Summary: 1) The authors

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79-2-15/64

Investigation of the Reaction of Tetrafluoroethylene With Trichloroarsenic in the Presence of Aluminum Chloride

realized the reaction of tetrafluoroethylene with trichloroarsenic in the presence of aluminum chloride at elevated temperatures and under pressure. They expressed their opinion on the mechanism of this process. The pentafluoroethyldichloroarsine not described was separated as main products. 2) Pentafluoroethyldifluoroarsine, pentafluoroethylarsine and pentafluoroethylarsenic acid hitherto not discribed in publications were produced and characterized. There are 1 table, and 16 references, 1 of which is Slavic.

SUBMITTED: February 2, 1957

AVAILABLE: Library of Congress

Card 4/4

ZEYDE, O.A.; SHERLIN, S.M.; BRUKER, A.B.

Interaction of n-halophenylhydrazines with arsenic acid. Zhur.ob. khim. 28 no.9:2404-2407 S '58. (MIRA 11:11)
(Arsenic acid) (Hydrazine)

BRUKER, A.B.; NIKIFOROVA, N.M.

New method for preparation of arsenic aromatic compounds by atmospheric oxygen oxidation of the mixture of phenylhydrazine and arsenic trichloride in the presence of copper chloride. Zhur.ob.khim. 28 no.9:2407-2412 S '58. (MIRA 11:11)
(Hydrazine) (Arsenic chloride)

BRUKER, A.B.; FRENKEL', R.I.; SOBOROVSKIY, L.Z.

Preparation of esters of fluoantimonic and fluotitanic acids by reacting antimony trifluoride with complete esters of these acids. Zhur.ob.khim. 28 no.9:2413-2416 S '58. (MIRA 11:11)
(Titanic acids) (Antimony fluorides)

AUTHORS: Bruker, A. B. and Levin, B. B. SOV/79-28-10-21/60

TITLE: Some Ideas on the Mechanism of the Synthesis of Aromatic Mercury Compounds by the Oxidation of Aryl Hydrazines With Salts of Bivalent Mercury (Nekotoryye soobrazheniya o mekhanizme polucheniya rtutnoaromaticheskikh soyedineniy okisleniyem arilgidrazinov solyami dvukhvalentnoy rtuti)

PERIODICAL: Zhurnal obshchey khimii 1958, Vol 28, Nr 10, pp 2725-2726, (USSR).

ABSTRACT: Seide (Zeyde) and his collaborators (Ref 6) obtained phenyl mercury acetate in good yield by the oxidation of phenyl hydrazine with acetic mercury in acetic medium in the presence of copper salts. The aim of the present paper was the elaboration of this synthesis. It was found that in the reaction of hydrochloric phenyl hydrazine with mercury chloride in hydrochloric medium in the presence of $CuCl_2$, phenyl mercury chloride in a yield of 43%, as related to the sublimation product was formed in the following way: $HgCl_2$ oxidizes the hydrochloric phenyl hydrazine to the phenyl diazonium chloride, which with the other part of $HgCl_2$ forms the double compound $C_6H_5N_2Cl.HgCl_2$. The latter forms

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in its reaction with hydrochloric phenyl hydrazine the phenyl mercury chloride:

$$C_6H_5NHNH_2 \cdot HCl + 4HgCl_2 \longrightarrow C_6H_5N_2Cl + 2Hg_2Cl_2 + 4HCl$$

$$C_6H_5N_2Cl + HgCl_2 \longrightarrow C_6H_5N_2Cl \cdot HgCl_2$$

$$2\ C_6H_5N_2Cl \cdot HgCl_2 + C_6H_5NHNH_2 \cdot HCl \xrightarrow{CuCl_2}$$

$$2C_6H_5HgCl + C_6H_5N_2Cl + 2N_2 + 4HCl$$

This scheme is proved by the fact that in the reaction of hydrochloric phenyl hydrazine with $C_6H_5N_2Cl \cdot HgCl_2$ under the same conditions the same final product is obtained. Apparently the formation of phenyl mercury acetate takes place similar to the scheme mentioned above. As phenyl mercury chloride is almost insoluble in hydrochloric acid it does not form a complex with phenyl diazonium chloride, so that the reaction is finished with the formation of phenyl mercury chloride.

SOV/79-28-10-21/60

Some Ideas on the Mechanism of the Synthesis of Aromatic Mercury Compounds by the Oxidation of Aryl Hydrazines With Salts of Bivalent Mercury

There are 10 references, 6 of which are Soviet.

SUBMITTED: July 13, 1957

Card 3/3

66170

~~7(2,3)~~ 5.3700(B) SOV/20-128-5-23/67

AUTHORS: Bruker, A. B., Malkov, K. M.

TITLE: A New Method for the Synthesis of Bismuth-aromatic Compounds by Oxidation of the Mixture Arylhydrazine and Bismuth Trichloride With Oxygen of the Air in the Presence of Cupric Chloride

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5, pp 948 - 950 (USSR)

ABSTRACT: In the beginning the authors give a chronological survey of the publications concerning the preparation of compounds from the group of substances mentioned in the title (Refs 1-6). The attempts to obtain antimony - or bismuth-aromatic compounds were not successful. In previous papers (Refs 7-10) the authors described a new method for the preparation of elemental-aromatic compounds; especially one similar to the method mentioned in the title but with arsenic- and antimony derivatives. The preparation of triphenyl bismuth due to interaction of phenylhydrazine combined with hydrochloric acid and bismuth trichloride (see title) is described in the paper under review. A regulation is mentioned. A formation mechanism of arsenic- and antimony-aro-

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4

66170

A New Method for the Synthesis of Bismuth-aromatic Compounds by Oxidation of the Mixture Arylhydrazine and Bismuth Trichloride With Oxygen of the Air in the Presence of Cupric Chloride SOV/20-128-5-23/67

matic compounds on account of diazo- and hydrazine reactions was suggested in previous papers (Ref 11) (see Diagrams). The transition of substance I to substance II is catalyzed by the presence of copper (and other metals) which yields one electron to nitrogen and receives it from the metal. The formation of triphenyl bismuth is similar to the formation of arsenic- and antimony-aromatic compounds. In both cases arylhydrazine is oxidized by oxygen of the air up to phenyl diazonium chloride. The latter interacts with bismuth trichloride and forms double compounds which are reduced by arylhydrazine. Thus bismuth-aromatic compounds are formed. There is a difference insofar as phenyl diazonium chloride does not yield double compounds of the type $ArN_2X.BiX_3$ under these conditions. Thus it is possible to separate primary or secondary bismuth-aromatic compounds. The double compound $(ArN_2X)_3.BiCl_3$ formed in this case forms triphenyl bismuth with phenylhydrazine. A. B. Bruker and F. L. Maklyayev (Ref 6) are mentioned in the paper. There are 12 references, 6 of which are Soviet.

PRESENTED: June 1, 1959, by I. L. Knunyants, Academician

SUBMITTED: May 28, 1959

Card 2/2

S/079/60/030/007/015/020
B001/B067 82298

5.3700C

AUTHORS: Raver, Kh. R., Bruker, A. B., Soborovskiy, L. Z.

TITLE: Reaction of Tetrafluoro Ethylene With Boron Trichloride

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2366 - 2368

TEXT: In the introduction, a survey is given on publications on the substitution of chlorine for fluorine bound to carbon. Then, the reaction of tetrafluoro ethylene with boron trichloride is studied. It was expected that boron chloride, like aluminum chloride, would be bound to substitute the fluorine atoms in the carbon fluorides by chlorine. On passing the vapors of boron trichloride and tetrafluoro ethylene over coal at 200-250° boron trifluoride is formed, which is separated and identified in the form of $4BF_3 \cdot 3(C_2H_5)_2O$, as well as trichloro-fluoro ethylene: $CF_2 = CF_2 + BCl_3 \longrightarrow CCl_2 = CFCl + BF_3$. The same results were also obtained in reacting tetrafluoro ethylene with boron trichloride in the autoclave at 100-150° under a pressure of 30-35 atm.

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Reaction of Tetrafluoro Ethylene With Boron Trichloride

S/079/60/030/007/015/020
B001/B067 82298

It must be said that in contrast with the reaction of tetrafluoro ethylene with aluminum chloride, where difluoro-dichloro ethylene and difluoro aluminum chloride are formed, boron trifluoride and trichloro-fluoro ethylene are formed in the above reaction. There are 8 references: 2 Soviet and 4 US.

SUBMITTED: June 1, 1959

X

Card 2/2

S/020/60/135/004/020/037
B016/B062

AUTHORS: Bruker, A. B., Balashova, L. D., and Soborovskiy, L. Z.

TITLE: Synthesis of Elemental-organic Compounds in Which Silicon or Tin Are Directly Bound to Phosphorus or Arsenic

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4, pp. 843-846

TEXT: The authors report on the synthesis of elemental-organic compounds containing the following bonds: I) Si — P, II) Si — As, and III) Sn — P. They studied the reaction between hydrophosphide, alkyl hydrophosphide or hydroarsenide of alkali metals, on the one hand, and the monohalogen alkyl derivatives of silicon and tin, on the other hand. The authors aimed at obtaining the above-mentioned compounds and succeeded in obtaining compounds in which hydrogen or the alkyl and aryl radicals, respectively, are directly bound to the element of the IV or V group of the periodic system. General reaction scheme: $R_3E^{IV}{}_X + MeE^VR'_2 \longrightarrow R_3E^{IV}\text{-}E^VR'_2$; R,R' = H, alkyl, aryl, etc.; E^{IV} = Si, Sn; E^V = P, As; X = halogen. Ad I) The authors observed that the use of alkyl fluoro silanes ensures the best reaction

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Synthesis of Elemental-organic Compounds in Which Silicon or Tin Are Directly Bound to Phosphorus or Arsenic

S/020/60/135/004/020/037
B016/B062

course. If trimethyl fluoro silane is caused to act upon potassium- (sodium-) dihydro phosphide, a mixture of bis- and tris-(trimethyl silyl) phosphines $[(CH)_3Si]_3P$ is obtained in a total yield of 40 - 50 %. The formation of secondary and tertiary silyl phosphines is explained by means of the scheme attached. The structure of silyl phosphines in which phosphorus is in the trivalent state was confirmed by hydrolysis with water and by infrared spectra. Ad II) Bis- and tris-(trimethyl silyl) arsine $[(CH_3)_3Si]As$ was obtained by allowing trimethyl fluoro silane to act upon potassium dihydro arsenide (total yield 25 %). The compounds of group II were less stable than those of group I. Ad III) Since the halogen derivatives of tin, as is known, are not subject to ammonolysis, the authors performed the reaction between the sodium- (potassium-) dihydro phosphide and the above derivatives in liquid ammonia in which both components are soluble. Consequently, this reaction takes place much more readily than in ether, and the use of fluorine derivatives is no more necessary. By interaction between trimethyl tin bromide and sodium hydrophosphide, the authors obtained an approximate yield of 65 % of tris-(trimethyl stannane) phosphine:

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Synthesis of Elemental-organic Compounds in Which Silicon or Tin Are Directly Bound to Phosphorus or Arsenic

S/020/60/135/004/020/037
B016/B062

$[(CH_3)_3Sn]_3P$. Mention is made of a paper by B. Arbuzov and coworkers (Ref. 1). N. Rodionova, S. Dubov, A. Khokhlova, and V. Fedotova examined the spectra. There are 15 references: 2 Soviet, 2 US, 2 Italian, 7 German, and 1 British.

PRESENTED: June 24, 1960, by I. L. Knunyants, Academician

SUBMITTED: June 23, 1960

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S/020/60/135/004/020/037
B016/B062

$$(CH_3)_3SiF + KPH_2 \rightarrow (CH_3)_3Si-PH_2 + KF;$$
$$(CH_3)_3Si-PH_2 + KPH_2 \rightarrow (CH_3)_3Si-PHK + PH_3;$$
$$(CH_3)_3Si-PHK + FSi(CH_3)_3 \rightarrow ((CH_3)_3Si)_2PH + KF;$$
$$((CH_3)_3Si)_2PH + KPH_2 \rightarrow ((CH_3)_3Si)_2PK + PH_3;$$
$$((CH_3)_3Si)_2PK + FSi(CH_3)_3 \rightarrow ((CH_3)_3Si)_3P + KF.$$

Card 4/4

BRUKER, A.B.

Synthesis of aromatic antimony compounds. Part 10: Synthesis of secondary antimony aromatic compounds and mechanism of this reaction. Zhur. ob. khim. 31 no.3:974-980 Mr '61. (MIRA 14:3)
(Antimony organic compounds)

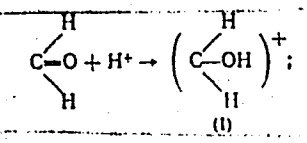
53630 2209, 2409, 2915 28649 S/020/61/139/006/015/022
B103/B101

AUTHORS: Grinshteyn, Ye. I., Bruker, A. B., and Soborovskiy, L. Z.

TITLE: Oxymethylation of phosphine and its derivatives

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 6, 1961, 1359-1362

TEXT: So far, it has been assumed that PH_3 as well as alkyl and aryl phosphines react with formaldehyde only with the participation of HCl or several salts. For this reaction (Ref. 6, see below) a mechanism has been suggested, according to which this process takes place via the intermediate formation of a formaldehyde cation (I). (I) reacts with a PH_3 molecule where a proton is split off. First, a monohydroxymethyl derivative is formed and then di- and tri-(hydroxymethyl)-phosphines and tetrahydroxymethyl phosphonium chloride:



(I)

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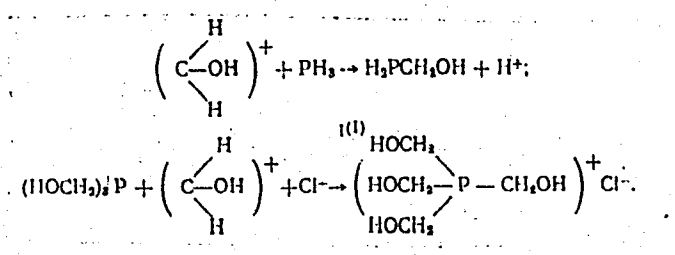

The authors, however, found that formaldehyde may react with phosphines according to another mechanism, derivatives of trivalent phosphorus being formed. Paraformaldehyde, for example, reacts with PH_3 (molar ratio 3:1) at 80-100°C, and forms tri-(hydroxymethyl)-phosphine in a high yield: $3\ CH_2O + PH_3 \longrightarrow (HOCH_2)_3P$. From this product, the authors obtained an oxide under the action of a dilute H_2O_2 solution: $(HOCH_2)_3P + H_2O_2 \longrightarrow (HOCH_2)_3P{=}O + H_2O$. According to the experiments, methyl

phosphine reacts with paraformaldehyde more readily, i.e., more rapidly and at lower temperatures than PH_3. It forms di-(hydroxymethyl)-methyl phosphine: $CH_3-PH_2 + 2CH_2O \rightarrow (HOCH_2)_2PCH_3$. This compound, which boils at 90°C/3 mm Hg, has not yet been described in the literature. With H_2O_2 it can be oxidized to a new oxide: $(HOCH_2)_2PCH_3 + H_2O_2 \rightarrow (HOCH_2)_2\underset{O}{P}CH_3$.

Dimethyl phosphine reacts with paraformaldehyde even more readily, and forms dimethyl hydroxymethyl phosphine: $(CH_3)_2PH + CH_2O \rightarrow (CH_3)_2PCH_2OH$. This compound belongs to a new type of monovalent alcohols with an organophosphorus radical at the C atom which is bonded with hydroxyl. The fact that PH_3 and organic phosphines react with formaldehyde even in the absence of a proton source is ascribed to the circumstance that this reaction is caused by an electrophilic attack of the C atom of the carbonyl group to the P atom of the phosphine molecule, thus forming hydroxymethyl phosphine. The latter compound is converted into di- and tri-(hydroxymethyl)-derivatives. This hypothesis explains the fact that methyl and dimethyl phosphines react with paraformaldehyde more readily

than PH_3. This is due to the strengthening of the electrodonor properties of phosphorus in the order $PH_3 < CH_3\text{-}PH_2 < (CH_3)_2PH$. The authors' method makes it possible to synthesize various hydroxyalkyl-substituted phosphines by using different alkyl and aryl phosphines as well as carbonyl compounds. There are 7 non-Soviet references. The three most important references to English-language publications read as follows: Ref. 2: A. Hoffman, J. Am. Chem. Soc., 52, 2995 (1930); Ref. 3: W. A. Reeves et al., J. Am. Chem. Soc., 77, 3923 (1955); Ref. 6: N. L. Paddock, Chem. and Ind., 1955, No. 29,900.

PRESENTED: March 16, 1961, by I. L. Knunyants, Academician

SUBMITTED: March 15, 1961

RAVER, Kh.R.; BRUKER, A.B.; SOBOROVSKIY, L.Z.

Reaction of aqueous formaldehyde with phosphine and 1,1,2,2-tetrafluoroethylphosphine. Zhur.ob.khim. 32 no.2:588-590 F '62. (MIRA 15:2)

(Formaldehyde)
(Phosphine)

S/079/62/032/009/008/011
I048/I242

AUTHORS: Balashova, L.D., Bruker, A.B., and Soborovskiy, L.Z.

TITLE: The interaction of silane and monoalkylsilanes with hydrogen halides under increased pressure, in the absence of a catalyst

PERIODICAL: Zhurnal obshchey khimii, v.32, no.9, 1962, 2982-2983

TEXT: Contrary to published data, interaction was observed between SiH_4 (or CH_3SiH_3) and HCl or HI at room temperature and increased pressures (20-60 atm), in the absence of catalysts. The liquid silane (or methylsilane) was condensed at liquid-air temperature and mixed with an equimolar amount of HCl or HI in a closed steel reaction vessel. The latter was heated at room temperature and the pressure within increased with time, reaching a constant value after between 0.75 hrs (in the case of methyl silane + HI) and 4 days (silane + HCl). The reactor was again immersed in liquid air, opened, and the reaction products were separated by fractionation at atmospheric pressure. The degree of conversion of the SiH_4 was

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S/079/62/032/009/008/011
I048/I242

The interaction of silane...

47.4-97.2%, that of CH_3SiH_3 was 100%; the total yield of halogen silanes (on the basis of silanes converted) was 94-99%, the yield of monohalogen silanes was 70.0-88.5%, and that of dihalogensilanes 0-17.1%. The highest yield of dihalogen silanes was obtained from SiH_4 + HI, while the reaction between CH_3SiH_3 and HI did not yield the dihalogen derivative. There is 1 table.

SUBMITTED: July 13, 1961

Card 2/2

BALASHOVA, L.D.; BRUKER, A.B.; SOBOROVSKIY, L.Z.

Interaction of silane and monoalkylsilanes with hydrohalides under overpressure in the absence of catalysts. Zhur.ob.khim. 32 no.9:2982-2983 S '62. (MIRA 15:9)
(Silane) (Hydrogen halides)

L 13351-63 EWP(j)/EPF(c)/EWT(m)/BDS ASD/ESD-3 Pc-4/Pr-4 RM/WW

ACCESSION NR: AP3002625 S/0079/63/033/006/1919/1923

AUTHOR: Bruker, A. B.; Baranayev, M. K.; Grinshteyn, Ye. I.; Novoselova, R. I.; Prokhorova, V. V.; Soborovskiy, L. Z.

TITLE: Mechanism and kinetics of hydroxymethylation of phosphines

7D
69

SOURCE: Zhurnal obshchey khimii, v. 33, no. 6, 1963, 1919-1923

TOPIC TAGS: hydroxymethylation, methylation, phosphine, electron-donor properties, electron-donor, formaldehyde, activation energy, phosphorus, carbon

ABSTRACT: The kinetics of reactions of hydrogen phosphide, ethyl phosphine, methyl phosphine, methyl-ethyl phosphine and dimethyl phosphine with paraformaldehyde without using special catalysts and solvents has been investigated. The activation energy of the reaction was determined. It was found that according to the values of the energy of activation in the reaction of paraformaldehyde, the studied phosphines follow the order: PH sub 3 less than C sub 2 H sub 5 PH sub 2 much less than CH sub 3 PH sub 2 less than CH sub 3 (C sub 2 H sub 5) PH much less than (CH sub 3) sub 2 PH. The proposed mechanism was confirmed, according to which the reaction proceeds with the electrophilic attack by the

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L 13351-63

ACCESSION NR: AP3002625

carbon atom of the carbonyl group to the electron-donor phosphorus atom in the phosphine molecule with the subsequent rearrangement of the intermediate complex. The theory is advanced that, in the reactions investigated, the increase in reactivity of phosphines substituted by methyl groups is connected with the fact that the weakly localized electron pair of the C-H bond in the methyl group at phosphorus reacts with 3rd-orbitals of the latter. This increases the electron-donor properties of phosphorus and hence facilitates the reaction with the electrophilic atom of the carbonyl group. Orig. art. has: 2 tables and 1 formula.

ASSOCIATION: none

SUBMITTED: 22Jun62 DATE ACQ: 20Jul63 ENCL: 00

SUB CODE: CH NO REF SOV: 003 OTHER: 004

Card 2/2

L 52108-65 EPF(c)/EPR/EWP(j)/EWA(c)/EWT(m) Pc-4/Pr-4/Ps-4 RPL WW/RM

ACCESSION NR: AP5015240 UR/0286/65/000/009/0022/0022

30

B

AUTHORS: Grinshteyn, Ye. I.; Bruker, A. B.; Soborovskiy, L. Z.

TITLE: A method for obtaining primary 1-hydroxyfluoroalkylphosphines. Class 12, No. 170498

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 22

TOPIC TAGS: hydroxyfluoroalkylphosphine, fluoroalkyl ketone, hydrogen phosphide

ABSTRACT: This Author Certificate presents a method for obtaining primary 1-hydroxyfluoroalkylphosphines. Fluoroalkyl ketones are interacted with hydrogen phosphide while being warmed to 50-110C.

ASSOCIATION: Organizatsiya gosudarstvennogo komiteta khimicheskoy promyshlennosti pri gosplane SSSR (Enterprise of the State Committee of the Chemical Industry at the Gosplan SSSR)

SUBMITTED: 20Mar64 ENCL: 00 SUB CODE: OC

NO REF SOV: 000 OTHER: 000

Card 1/1

RAVER, Kh.R.; BRUKER, A.B.; SOBOROVSKIY, L.Z.

Reaction of haloolefins with chloride, and hydrides of elements of group III and IV. Part 5: Reaction of tetrafluoroethylene with arsenic hydrides, and hydroxymethylation of fluoroalkylarsines produced. Zhur. ob. khim. 35 no.7:1162-1164 Jl '65. (MIRA 18:8)

BALASHOVA, L.D.; BRUKER, A.B.; SOBOROVSKIY, L.Z.

Study of element-organometallic compounds. Part 3. Synthesis of alkyltrialkyltinphosphines. Zhur.ob.khim. 35 no.12.2201-2209 D '65. (MIRA 19:1)

1. Submitted January 18, 1965.

L 16076-66 EWT(m)/EWP(j) RM

ACC NR: AP6005923 SOURCE CODE: UR/0079/66/036/001/0073/0075

AUTHOR: Balashova, L. D.; Bruker, A. B.; Soborovskiy, L. Z.

ORG: none

TITLE: Metal organometallic compounds. Part 2. Synthesis of silyl- and alkylsilylphosphines

SOURCE: Zhurnal obshchey khimii, v. 36, no. 1, 1966, 73-75

TOPIC TAGS: organosilicon compound, organolithium compound, silane

ABSTRACT: Silylphosphines in which the silicon atom is linked to alkyl-alkoxy or alkyl-dialkylamino groups, were synthesized. Thus, action of the corresponding dimethylalkoxychlorosilane on lithium methylhydrophosphide produced bis(dimethylmethoxysilyl)methylphosphine (I) and bis(dimethylisobutoxysilyl)methylphosphine (II):

$$2CH_3PHLi + 2ClSi(CH_3)_2(OR) \rightarrow CH_3P[Si(CH_3)_2(OR)]_2 + CH_3PH_2 + 2LiCl$$

(I) R = CH_3 (II) R = iso-C_4H_9

Reaction of bis(diethylamino)methylchlorosilane with lithium dihydrophosphide yield-

UDC: 547.241 + 547.245

Card 1/3

L 16076-66

ACC NR: AP6005923

ed bis(diethylamino)methylsilylphosphine (III):

$$CH_3Si[N(C_2H_5)_2]_2Cl + LiPH_2 \rightarrow \underset{(III)}{H_2P-Si(CH_3)[N(C_2H_5)_2]_2} + LiCl$$

Similarly, bis(diethylamino)methylsilylmethylphosphine

$$CH_3\overset{H}{\overset{|}{P}}-\overset{CH_3}{\overset{|}{Si}}[N(C_2H_5)_2]_2 \quad (IV).$$

was obtained from the reaction of bis(diethylaminomethyl)chlorosilane with lithium methylhydrophosphide. When diethylaminodimethylchlorosilane reacted with lithium methylhydroshosphide, the products were (diethylaminodimethylsilyl)methylphosphine (V) and bis(diethylaminodimethylsilyl)methylphosphine (VI):

$$3(CH_3)_2\overset{N(C_2H_5)_2}{\overset{|}{Si}}-Cl + 3Li\overset{H}{\overset{|}{P}}-CH_3 \rightarrow \underset{(V)}{CH_3P\begin{matrix}H\\ \diagup\\ \diagdown\end{matrix}\begin{matrix}(CH_3)_2\\ Si-N(C_2H_5)_2\end{matrix}} + CH_3P\left[Si\begin{matrix}(CH_3)_2\\ \diagdown\\ \diagup\\ N(C_2H_5)_2\end{matrix}\right]_2 + CH_3PH_2 + 3LiCl \quad (3)$$

(VI)

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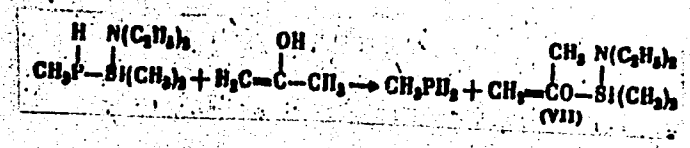
L 16076-66

ACC NR: AP6005923

Acetone reacts in the enol form with compound (V); the Si-P bond is broken, and a heretofore undescribed compound, diethylaminodimethyl-α-methylvinyloxysilane (VII), and methylphosphine are formed:



SUB CODE: 07/ SUBM DATE: 18Jan65/ ORIG REF: 003/ OTH REF: 000

Card 3/3

L 16077-66 EWT(m)/EWP(j) RM

ACC NR: AP6005924 SOURCE CODE: UR/0079/66/036/001/0075/0078

AUTHOR: Bruker, A. B.; Balashova, L. D.; Soborovskiy, L. Z.

ORG: none

22
21
B

TITLE: Metal organometallic compounds. Part 4. Reaction of dialkyl disulfides with silicon and tin phosphines and with alkali metal hydrophosphides

SOURCE: Zhurnal obshchey khimii, v. 36, no. 1, 1966, 75-78

TOPIC TAGS: organosilicon compound, organic sulfur compound, organosodium compound, organotin compound

ABSTRACT: The general scheme of reactions of alkali metal hydrophosphides and alkylhydrophosphides with dialkyl disulfides can be represented as follows:

$$H_2PMe + 3R'S-SR' \rightarrow \underset{(I)}{P(SR')_3} + MeSR' + 2HSR'$$

$$RHPMe + 2R'S-SR' \rightarrow \underset{(II)}{RP(SR')_2} + MeSR' + HSR'$$

Card 1/2

L 16077-66

ACC NR: AP6005924

The dialkyl disulfide splits to form the corresponding thiol esters of acids of trivalent phosphorus. When silicon and tin phosphines were reacted with dialkyl sulfides, trialkylsilicon and trialkyltin alkyl sulfides and thiol esters of acids of trivalent phosphorus were obtained. Depending upon the ratio of the reactants and temperature of the process, the trialkyltin or trilakylsilicon groups may be partially or completely replaced by thiol groups, e. g., the action of methylbis(triethyloltin)phosphine $CH_3P[Sn(C_2H_5)_3]_2$ on diethyl disulfide at a molar ratio of 1:2 forms compound (II) and $(C_2H_5)_3Sn\text{-}SC_2H_5$. The compound $(CH_3)_3Sn\text{-}SC_2H_5$ was obtained by reacting tris(trimethyloltin)phosphine with diethyl disulfide at 50°. Heating of tris(trimethylsilicon)phosphine with diethyl disulfide gave rise to the following reaction:

$$P[Si(CH_3)_3]_3 + C_2H_5S\text{-}SC_2H_5 \rightarrow (CH_3)_3SiP(SC_2H_5)_2 + 2(CH_3)_3Si\text{-}SC_2H_5$$

SUB CODE: 07/ SUBM DATE: 18Jan65/ ORIG REF: 003/ OTH REF: 000

Card 2/2

L 25607-66 EWT(m)/EWP(j) RM

ACC NR: AP6016701 SOURCE CODE: UR/0079/65/035/012/2207/2209

AUTHOR: Balashova, L. D.; Bruker, A. B.; Soborovskiy, L. Z.

ORG: none

28

B

TITLE: Investigation of element-elementoorganic compounds. III. Synthesis of alkyltrialkyltin phosphines

SOURCE: Zhurnal obshchey khimii, v. 35, no. 12, 1965, 2207-2209

TOPIC TAGS: organic synthetic process, organotin compound, organolithium compound, organosodium compound, organic phosphorus compound, chlorinated organic compound

ABSTRACT: The preparation of the new compounds -- bis(trimethyltinmethyl)phosphine (I) and bis(triethyltinmethyl)phosphine (II) by two methods are described. The first method is by reaction of the corresponding trialkyltinhalide with sodium (or potassium) methylhydrophosphide in liquid ammonia or with lithium methylhydrophosphide in an ether solution according to the general reaction:

$$2CH_3PHMe + 2XSnR_3 \longrightarrow CH_3P(SnR_3)_2 + 2MeX + CH_3PH_2$$

Compound (I) is prepared in an 80-90% yield from the reaction of trimethyltin bromide on lithium methylhydrophosphide in ether solution. Compound (II) is obtained in a 70% yield from the reaction of triethyltin chloride and lithium methylhydrophosphide. The second method is by the action of methylchlorophosphine on

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UDC: 547.241

2

L 25607-66

ACC NR: AP6016701

the sodium derivative of trimethyltin or triethyltin according to the general reaction:

$$CH_3PCl_2 + 2NaSnR_3 \longrightarrow CH_3P(SnR_3)_2 + 2NaCl$$

The second method gives lower yields of compounds (I) and (II), about 10-15%. In this case the reactions are accompanied by a number of side processes. Thus, in the reaction of methyldichlorophosphine with the sodium derivative of triethyltin, triethyl chloride (11%) and hexaethyldistannane (42%) were isolated:

$$CH_3PCl_2 + 2NaSn(C_2H_5)_3 \longrightarrow CH_3PNa_2 + 2ClSn(C_2H_5)_3$$

The reaction of triethyltin chloride with the Na-derivative of triethyltin can lead to the formation of hexaethyldistannane:

$$(C_2H_5)_3SnNa + ClSn(C_2H_5)_3 \longrightarrow NaCl + (C_2H_5)_3Sn\text{--}Sn(C_2H_5)_3.$$

[JPRS]

SUB CODE: 07 / SUBM DATE: 18Jan65 / ORIG REF: 001 / OTH REF: 002

Card 2/2

ACC NR: AP6033463 SOURCE CODE: UR/0413/66/000/018/0041/0041

INVENTOR: Raver, Kh. R.; Bruker, A. B.; Soborovskiy, L. Z.

ORG: none

TITLE: Preparation of trihydroxymethylarsine. Class 12, No. 185919

SOURCE: Izobret prom obraz tov zn, no. 18, 1966, 41

TOPIC TAGS: trihydroxymethylarsine preparation, arsine, formaldehyde, organic arsenic compound

ABSTRACT: In the proposed method for the preparation of trihydroxymethylarsine, arsine is treated with aqueous solution of formaldehyde in the presence of a catalyst, e.g., hydrogen chloride or cadmium chloride. [W.A. 50]

SUB CODE: 07/ SUBM DATE: 16Jun65

Card 1/1 UDC: 547.261'119.07

L 31276-66 EWT(m)/EWP(j) RM

ACC NR: AP6022800 SOURCE CODE: UR/0079/66/036/002/0302/0306

AUTHOR: Grinshteyn, Ye. I.; Bruker, A. B.; Soborovskiy, L. Z.

ORG: none

TITLE: Synthesis of organophosphorus compounds based on phosphorus hydrides. III. Reactions of ethyl-, diethyl-, and methylethylphosphines with paraformaldehyde

SOURCE: Zhurnal obshchey khimii, v. 36, no. 2, 1966, 302-306

TOPIC TAGS: chemical synthesis, hydride, formaldehyde, oxide formation, hydrogen peroxide, halogenated organic compound, organic salt, coordination chemistry, alkylphosphine, halide

ABSTRACT: Di(hydroxymethyl)ethylphosphine, hydroxymethyldiethylphosphine, and hydroxymethylmethylethylphosphine were produced by reaction of paraformaldehyde with phosphines under pressure. Di(hydroxymethyl)ethylphosphine oxide was produced for the first time by oxidation of di(hydroxymethyl)-ethylphosphine with hydrogen peroxide; hydroxymethyldimethylphosphine oxide was produced analogously. Reaction of the hydroxymethylphosphines with alkyl halides yielded the corresponding quaternary phosphonium salts: tri(hydroxymethyl)methylphosphonium iodide, di(hydroxymethyl)dimethylphosphonium iodide, hydroxymethyltrimethylphosphonium iodide, hydroxymethyltrimethylphosphonium chloride, and hydroxymethylmethylethyl-n-propylphosphonium bromide. The hydroxymethylphosphines in alcohol solution readily formed coordination compounds with mercuric chloride. Tri(hydroxymethyl)phosphine was produced from hydrogen phosphide and paraformaldehyde under slight excess pressure. The basicity of the phosphines was found to increase in the series $(HOCH_2)_3P < (HOCH_2)_2PCH_3 < HOCH_2P(CH_3)_2$. The IR spectra were done by S. S. Dubov and V. V. Fedotova. Orig. art. has: 1 table. [JPRS]

SUB CODE: 07 / SUBM DATE: 22Oct64 / ORIG REF: 005 / OTH REF: 005

Card 1/1 UDC: 547.241: 547.438.1

0915 0779

L 31812-66 EWT(m)/EWP(j) RM

ACC NR: AP6021680 SOURCE CODE: UR/0079/66/036/003/0484/0488

41
39
B

AUTHOR: Bruker, A. B.; Grinshteyn, Ye. I.; Soborovskiy, L. Z.

ORG: none

TITLE: Synthesis of organophosphorus compounds on the basis of phosphorus hydrides. IV. Synthesis of beta-hydroxyethylalkylphosphines and beta-hydroxyethyldialkylphosphines and their derivatives

SOURCE: Zhurnal obshchey khimii, v. 36, no. 3, 1966, 484-488

TOPIC TAGS: organic phosphorus compound, chemical synthesis, nonmetallic organic derivative, alkylation, alkylphosphonium salt, alkylphosphine, alkylphosphonium hydroxide

ABSTRACT: Primary and secondary phosphines, containing the beta-hydroxyethyl radical, were alkylated with alkyl halides, resulting in the production of the corresponding beta-hydroxyethylalkylphosphonium and beta-hydroxyethyldialkylphosphonium halides, decomposition of which with alkali leads to beta-hydroxyethylalkylphosphines and beta-hydroxyethyldialkylphosphines. Beta-hydroxyethylalkylphosphines and beta-hydroxethyldialkylphosphines were also produced by reaction of ethylene oxide with alkylhydrophosphides and dialkylphosphides of the alkali metals. Previously undescribed compounds, derivatives of beta-hydroxyethyldimethylphosphine: beta-acetoxyethyldimethyl-

Card 1/2 UDC: 546.181.1:547.438.1

L 31812-66

ACC NR: AP6021680

phosphine, beta-acetoxyethyltrimethylphosphonium iodide, and beta-hydroxyethyl-dimethylphosphine oxide, were produced. Ethylene oxide did not react with dimethylphosphine in the absence of moisture; in the presence of water the reaction product was not a tertiary beta-hydroxydimethylphosphine, but bis-(beta-hydroxyethyl)-dimethyl-phosphonium hydroxide. The infrared spectrum was done by S. S. Dubov and V. V. Fedotova. [JPRS]

SUB CODE: 07 / SUBM DATE: 16Nov64 / ORIG REF: 004

Card 2/2

L 44179-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6011234 SOURCE CODE: UR/0413/66/000/006/0074/0074

INVENTOR: Shorygina, N. V.; Ninin, V. K.; Soborovskiy, L. Z.; Bruker, A. B.; Raver, Kh. R.

ORG: none

40
39
B

TITLE: Method of obtaining fireproof and heat-resistant phenol-formaldehyde resins. Class 39, No. 179920

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 74

TOPIC TAGS: resin, phenolformaldehyde, organic phosphorus compound, fire resistant resin, heat resistant plastic

ABSTRACT: An Author Certificate has been issued for a method of obtaining fireproof and heat-resistant phenolformaldehyde resins by the modification of phenolformaldehyde and arylphenolformaldehyde resins with an organic phosphorus-containing compound and introducing it during the process of tar formation. To increase the fire and heat resistance of

Card 1/2 UDC: 678.632'0'21:678.85

L 06507-67 EWP(j)/EWT(m) RM/WW

ACC NR: AP7000485 SOURCE CODE: UR/0079/66/036/006/1138/1141

GRINSHTEYN, Ye. I., BRUKER, A. B., SOBOROVSKIY, L. Z.

"Synthesis of Organophosphorus Compounds Starting with Phosphorus Hydrides. VI. Reactions of Trifluoroacetone with Phosphorus Hydrides"

28
13

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 6, 1966, pp. 1138-1141
TOPIC TAGS: alkylphosphine, fluorinated organic compound, organic synthetic process

Abstract: The reaction of 1, 1, 1-trifluoroacetone with phosphine, methyl- and dimethylphosphine was carried out, and the corresponding 1-hydroxy-2,2,2-trifluoroisopropylphosphines were obtained and characterized. The reaction of trifluoroacetone with phosphines, similar to that of hexafluoroacetone with phosphorus hydrides, was found to be limited to the replacement of only one hydrogen atom on the phosphorus by the 1-hydroxy-2,2,2-trifluoroisopropyl radical. Some derivatives of the 1-hydroxy-2,2,2-trifluoroisopropylphosphines were produced and characterized. The primary phosphine 1-hydroxy-2,2,2-trifluoroisopropylphosphine was converted to 1-hydroxy-2,2,2-trifluoroisopropylphosphinic acid by boiling with excess hydrogen peroxide in aqueous solution, to the corresponding ester by treatment with acetylchloride, and to 1-hydroxy-2,2,2-trifluoroisopropyldi(hydroxymethyl)phosphine by hydroxymethylation with formaldehyde in aqueous solution in the presence of cadmium chloride. The tertiary phosphine 1-hydroxy-2,2,2-trifluoroisopropyldi(hydroxymethyl)phosphine was oxidized to the corresponding phosphine oxide. The secondary and tertiary phosphines synthesized exhibited analogous reactions. The IR spectra were analyzed by S. S. Dubov and V. V. Fedotov. [UDS: 547.023]

SUB CODE: 07 / SUBM DATE: 08Mar65

Card 1/1 mk

UDC: 547.438.1

L 06508-67 EWT(m)/EWP(j) WW/RM

ACC NR: AP7000484 SOURCE CODE: UR/0079/66/036/006/1133/1138

27
25
B

BRUKER, A. B., GRINSHTEYN, Ye. I., SOBOROVSKIY, L. Z.

"Synthesis of Organophosphorus Compounds Starting with Phosphorus Hydrides. V. Reaction of Hexafluoroacetone with Phosphorus and Arsenic Hydrides"

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 6, 1966, pp 1133-1138

TOPIC TAGS: alkylphosphine, fluorinated organic compound

Abstract: It was found that phosphine reacts readily with hexafluoroacetone to form 1-hydroxyhexafluoroisopropylphosphine, which is the first representative of the group of primary alpha-hydroxyalkylphosphines, a new group of organophosphorus compounds containing an alpha-hydroxyfluoroalkyl radical on the phosphorus atom, together with hydrogen atoms. The reaction of hexafluoroacetone with dimethylphosphine leads to 1-hydroxyhexafluoroisopropyldimethylphosphine, which has not been described previously. A mechanism is proposed for the indicated processes. Some conversions of the 1-hydroxyhexafluoroisopropylphosphines synthesized were studied, resulting in a number of previously unknown derivatives of these substances. Reaction of 1-hydroxyhexafluoroisopropylphosphine with an aqueous solution of formaldehyde in the presence of catalytic cadmium chloride yields 1-hydroxyhexafluoroisopropyldi(hydroxymethyl)phosphine; the latter is oxidized to 1-hydroxyhexafluoroisopropyldi(hydroxymethyl)phosphine oxide. Treatment of the secondary phosphine 1-acetoxyhexafluoroisopropylmethylphosphine with aqueous formaldehyde in the

Card 1/2 UDC: 547.438.1

0923 1198

L 06508-67
ACC NR: AP7000484

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presence of catalytic amounts of cadmium chloride yielded 1-hydroxyhexafluoroisopropyloxymethylmethylphosphine. 1-Hydroxyhexafluoroisopropyldimethylphosphine was readily oxidized by atmospheric oxygen to the corresponding oxide. 1-Acetoxyhexafluoroisopropyldimethylphosphine was obtained from the action of acetylchloride upon 1-hydroxyhexafluoroisopropyldimethylphosphine. The reaction of hexafluoroacetone with phosphines was extended to arsines: the reaction of hexafluoroacetone with arsine yielded the previously unknown 1-hydroxyhexafluoroisopropylarsine, the first representative of primary arsines with a hydroxyl group in the alpha-position to the arsenic atom. The IR spectra were analyzed by S. S. Dubov and V. V. Fedotov. [JPRS: 37,023]

SUB CODE: 07 / SUBM DATE: 08Mar 5 / ORIG REF: 013 / OTH REF: 007

Card 2/2 WS

ACC NR: AP6029022 SOURCE CODE: UR/0413/66/000/014/0024/0024

INVENTOR: Soborovskiy, L. Z.; Grinshteyn, Ye. I.; Bruker, A. B.

ORG: none

TITLE: Preparation of secondary 1-hydroxyfluoroalkyl alkyl phosphines. Class 12, No. 183748

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 24

TOPIC TAGS: ~~secondary hydroxyfluoroalkyl alkyl phosphine,~~ fluoroalkyl ketone, primary phosphine, organic phosphorus compound, fluorinated organic compound, ketone

ABSTRACT: In the proposed method, secondary 1-hydroxyfluoroalkylalkylphosphines are obtained by the reaction of primary phosphines with fluoroalkyl ketones. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 14Sep64/

Card 1/1 UDC: 547.419.1.07

ACC NR: AP6029022 SOURCE CODE: UR/0413/66/000/014/0024/0024

INVENTOR: Soborovskiy, L. Z.; Grinshteyn, Ye. I.; Bruker, A. B.

ORG: none

TITLE: Preparation of secondary 1-hydroxyfluoroalkyl alkyl phosphines. Class 12, No. 183748

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 24

TOPIC TAGS: ~~secondary hydroxyfluoroalkyl alkyl phosphine,~~ fluoroalkyl ketone, primary phosphine, organic phosphorus compound, fluorinated organic compound, ketone

ABSTRACT: In the proposed method, secondary 1-hydroxyfluoroalkylalkylphosphines are obtained by the reaction of primary phosphines with fluoroalkyl ketones. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 14Sep64/

Card 1/1 UDC: 547.419.1.07

BRUKER, A.S., inzh.; GAVRILOV, M.N., inzh.; KULTASHEV, Ye.N., inzh.:

Results of testing the strength and vibration of "Dzhankoy"-type ship hulls. Biul. tekh.-ekon. inform. Tekh. upr. Min. mor. flota 7 no.12:30-34 '62. (MIRA 16:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut morskogo flota.

RUMANIA/Human and Animal Physiology. Sense Organs. Interoception. T

Abs Jour: Ref Zhur-Biol., No 20, 1958, 93732.

Author : Bruker, I., Belechanu-Stolnich, K.
Inst : Communist Academy R.P.R.
Title : Investigation of Visual Chemoreceptors (Resume)

Orig Pub: Rumynsk. med. obozreniye, 1957, 1, No 2, 101-102.

Abstract: For shutdown of the efferent venous pathways of the eye part of the anastomosis of the draining vessels was destroyed by means of separating the conjunctiva of the eyeball, and the anterior ciliary veins were detached by cutting the rectus muscles; circulation was stopped in the veins of the choroid membranes by exposing the sclera from its ciliary nerves, and a diathermic coagulation was achieved of all the vascular trunks near to the optic nerve. A study was

Card : 1/3

RUMNL/Human and Animal Physiology. Sense Organs. Interoception. T

Abs Jour: Ref Zhur-Biol., No 20, 1958, 93732.

conducted in cats prepared by these methods of the effect of perfusion of the anterior chambers by different substances which influenced arterial pressure and respiration. A positive effect, accomplished with perfusion by a 10% NaCl solution, a 5% acetic acid solution, a 1% acetylcholine solution, etc, showed that it was the result of reflexes of the receptors of the eye. Inasmuch as the temperature of the perfusion liquid and the pressure in it remained constant, and only its chemical composition changed, it could be considered that this was a chemoreceptor. A series of control experiments (blockade of receptors with perfusion of the chambers by novocain, interrupting the afferent pathway with retrobulbar injection of novocain which produced a temporary depression of

Card : 2/3

BRUKER, I.Ye.

Surgery for pulmonary tuberculosis in the Pamirs; preliminary report. Zdrav.Tadzh. 6 no.2:42-44 Mr-Ap '59. (MIRA 12:9)

1. Iz oblastnoy bol'nitsy, gor.Khorog.
(PAMIRS--TUBERCULOSIS)

BRUKER, I.Ye.

Organization of surgical aid for pulmonary tuberculosis in a rural locality. Zdrav.Tadzh. 9 no.4:9-12 Jl-Ag '62. (MIRA 15:11)

1. Iz Kulyabskogo tuberkuleznogo statsionara (glavnyy vrach Baymuradov).
(TUBERCULOSIS) (KULYAB--LUNGS--SURGERY)

BRUKER, I.Ye.

Surgical treatment of pulmonary tuberculosis under rural conditions. Zdrav. Tadzh. 10 no.5:11-15 '63. (MIRA 17:2)

1. Zaveduyushchiy torakal'nym otdeleniyem Kulyabskogo protivotuberkuleznogo dispansera (glavnyy vrach - M.B. Boymuradov).

LODZIK, N.A., inzhener; BRUKER, V.A., inzhener.

Removing dust from mail by means of a central exhaust system. Vest. sviazi 16 no.7:22-23 Jl '56. (MLRA 9:9)

1.Tekhniko-ekonomicheskaya laboratoriya Moskovskogo pochtamta.
(Dust--Removal) (Postal service)

BRUKER, V.A.; NEMIROVSKIY, L.A.; URUMYAN, N.V., inzh.

Method for determining the economic effect resulting from the mechanization of postal operations. Vest. sviazi 23 no.12:14-15 D '63. (MIRA 17:2)

1. Nachal'nik proizvodstvenno-tekhnicheskoy laboratorii Moskovskogo pochtamta (for Bruker). 2. Starshiy inzh. proizvodstvenno-tekhnicheskoy laboratorii Moskovskogo pochtamta (for Nemirovskiy).

BRUKER, V.A.; YURASOVSKAYA, R.I., inzh.

Continuous lines for handling printed matter at the Moscow post office. Vest.sviazi 20 no.6:19-20 Je '60. (MIRA 13:7)

1. Starshiy inzhener tekhniko-ekonomicheskoy laboratorii Moskovskogo pochtamta (for Bruker).
(Moscow--Postal service)

BRUKHANOV, I. M.

Cand Chem Sci - (diss) "Physico-chemical characteristics of saline water and silt of Lake Abalakh (Yakutsk ASSR)." Tomsk, Pub. by Tomsk Univ, 1961. 17 pp; with diagrams; (Tomsk State Univ imeni V. V. Kuybyshev); 150 copies; price not given; (KL, 5-61 sup, 175)

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1. Nachal'nik kommercheskogo otdela Odesskogo porta. (Merchant marine) (Ships--Cargo)

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Efficient planning of the direction of freight flow. Mor. flot 21 no.9:12-13 S '61. (MIRA 14:9)

1. Nachal'nik Kommercheskogo otdela Chernomorskogo parokhodstva.
(Ships—Cargo)

BRUKHIS, G.

Improving the planning of foreign trade cargo deliveries to sea harbors. Mor.flot 22 no.4:6-8 Ap '62. (MIRA 15:4)

1. Nachal'nik kommercheskogo otdela Chernomorskogo parokhodstva.
(Russia—Commerce) (Cargo handling)

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Reduce the consumption of labor for weighing and measuring cargoes. Mor. flot 23 no.4:10-11 Ap '63. (MIRA 16:5)

1. Nachal'nik kommercheskogo otdela Chernomorskogo parokhodstva. (Cargo handling)

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Abolish the inadequate system of planning and accounting in shipping. Mor. flot 25 no.3:9-10 Mr '65.

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1. Nachal'nik kommercheskogo otdela Chernomorskogo parokhodstva.

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1. Nachal'nik kommercheskogo otdela Chernomorskogo parokhodstva.

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VAYSMAN, M.M., kapitan dal'nego plavaniya; BRUKHIS, G.Ye.

Experience in the transportation of cacao beans. Biul. tekh.-ekon.inform. Tekh. upr. Min. mor. flota 7 no.5:36-39 '62. (MIRA 16:3)

1. Nachal'nik kommercheskogo otdela Chernomorskogo parokhodstva (for Brukhis).

(Cocoa--Transportation)

FAYNBLIT, A., inzhener; BRUKHIS, P., inzhener.

Determining the productive capacity of feed mills. Muk.-elev.prom. 22 no.6:15-16 Je '56. (MIRA 9:9)

1.Irkutskiy trest Glavmuki (for Faynblit).2.Irkutskiy kombikormovyy zavod (for Brukhis).
(Feed mills)

BRUKHIS, P., inzh.

Determining the capacity of conveyers with sunk scrapers. Muk.-elev.prom. 23 no.9:20-21 S '57. (MIRA 11:1)

1. Irkutskiy kombikormovyy zavod.
(Conveying machinery)

Brukhley M. A.

AUTHOR: Brukhley, M.A. 21-4-21/24

TITLE: Effect of the Prolonged Vernalization of Seeds and the Lighting Regime on Frost Resistance of Peach Seedlings (Vplyv tryvalosti yarovyzatsii nasinnya i rezhymu osvitlennya na zymostiykist' siyantsiv persyka)

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi RSR, 1957, # 4, p 402-405 (USSR)

ABSTRACT: The least injury by frost in peach seedlings was found in a series of experiments in which the seeds were subjected to prolonged vernalization, and the greatest was found in plants grown from unvernalized seeds. Only seedlings grown from vernalized seeds are capable of raising their frost-resistance under the influence of the lighting regime. The highest frost resistance (for all series of experiments) was revealed by peach seedlings which received light in the middle of the day, especially in cases when the light dosage was applied during the second half of the vegetative period.

Card 1/2 The article contains 3 photos.

21-4-21/24

TITLE: Effect of the Prolonged Vernalization of Seeds and the Lighting Regime on Frost Resistance of Peach Seedlings (Vplyv tryvalosti yarovyzatsii nasinnya i rezhymu osvitlennya na zymostiykist' siyantsiv persyka)

There are 3 references, all Slavic.

INSTITUTION: Scientific Research Institute of Horticulture

PRESENTED BY: Hryshko, M.M. (Russian equivalent - Grishko, N.N.), Member of the Ukrainian Academy of Sciences.

SUBMITTED: 10 January 1957

AVAILABLE: At the Library of Congress

Card 2/2

BRUKHLEY, M. A., Candidate Biol Sci (diss) -- "The effect of yarovization and illumination on the formation of cold-resistance in peach seedlings". Chernovtsy, 1959. 18 pp (Min Higher Educ Ukr SSR, Chernovtsy State U), 150 copies (KL, No 25, 1959, 130)

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Terentii Mal'tsev. Moskva, Molodaia gvardiia, 1962. 251 p. (MIRA 15:8)

1. Spetsial'nyy korrespondent "Literaturnoy gazety" (for Ivanov).

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YANKOVSKAYA, Min'ona Islamovna; BRUKHNOV, M., red.; KURLYKOVA, L., tekhn. red.

[Robert Koch]Robert Kokh. Moskva, Molodaia gvardiia, 1962. 271 p. (Zhizn' zamechatel'nykh liudei. Seriia biografii, no.13(346)) (MIRA 16:1)

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BRUKHOVSKIY, V. I. PA5/49T70

USSR/Medicine - Birds Jul 48
Medicine - Environment

"Appearance of the Merops Apiaster L. in the Zhitomir Oblast'," V. I. Brukhovskiy, $\frac{1}{4}$ p

"Priroda" No 7

From 25-30 May 47, flights of subject birds 20-50 strong appeared in Zhitomir Oblast. This was their first recorded visit, and specimens were captured for the local museum. Most of the birds left during first week in Jun, except for isolated nesting couples who remained until beginning of Aug.

[redacted] 5/49T70

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307110014-4"

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1. Zavod za fotogeometriju AGG Fakulteta.

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1. Geodetska tehnicka skola, Zagreb.

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