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ARBUZOV, B. A.

3

The action of phosphorus trichloride on ethyl orthopropionate and ethyl orthosilicate. B. A. Arbuzov and N. P. Bogonostseva (Kazan State Univ.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 484–9.—Addn. of 10.6 g. PCl_3 to 40 g. $EtC(OEt)_3$ led to much heat evolution with a temporary formation of a colorless ppt. After 2 hrs. on a steam bath the reaction mixture yielded 10.1 g. $EtCO_2Et$, 9.8 g. $(EtO)_3P$, and 9.9 g. $EtC(OEt)_2P(O)(OEt)_2$ (I), b_{14} 140–2°, d_{20}^{20} 1.0353, n_D^{20} 1.4324. I treated with H_2O and a little HCl slowly hydrolyzed and after 2 weeks gave a homogeneous soln. which on distn. yielded a product, b_{11} 108–10°, n_D^{20} 1.4265, which formed a semicarbazone, m. 160–3°, in very low yield (this is used as a confirmation of the above structure). $(EtO)_3P$ (28 g.) slowly treated with 15.5 g. EtCOCl and the mixt. distd. gave 14.5 g. $EtCOPO(OEt)_2$, b_3 100.5–2.5°, d_{20}^{20} 1.0893, n_D^{20} 1.4230; the residue was a water-sol. solid. Repeated distn. of the above product gave an extended fraction (b_3 67–121°) from which only some 30% product, b_3 100.5–2.5°, d_{20}^{20} 1.080, n_D^{20} 1.4201, was obtained, and further distn. was similarly unsatisfactory. This product treated in aq. soln. with Na nitroprusside and aq. NaOH gave a red color. With aq. EtOH, NaOAc, and $H_2NCONHNH_2.HCl$ it slowly gave the semicarbazone, m. 160–2°, identical with that cited above. Letting $EtCOPO(OEt)_2$ stand overnight with $HC(OEt)_3$ in abs. EtOH failed to yield any I, and only the essentially unreacted ester, b_{12} 118–19.5°, d_{20}^{20} 1.0715, n_D^{20} 1.4170, was recovered. Formation of I is represented by initial addn. of the components to yield $EtC(OEt)_2Cl$ and $EtOPCl_2$; the former product then reacts with $P(OEt)_3$ that is formed in the mixt. by the Arbuzov reaction and yields I and EtCl. PCl_3 (15.7 g.) and 40 g. $EtC(OEt)_3$ kept 2.5 hrs. on a steam bath (a little ppt. formed) and the mixt. distd. gave 21.5 g. $EtCO_2Et$ and 5.5 g. $(EtO)_2PCl$, b_{23} 52–4°, d_{20}^{20} 1.0871, n_D^{20} 1.4344. Similar reaction with 39.17 g. PCl_3 and 50 g. $EtC(OEt)_3$ gave a considerable ppt. and yielded 34 g. crude $EtCO_2Et$ and 12 g. $EtOPCl_2$, b. 116–18°, d_{20}^{20} 1.2373, n_D^{20} 1.4750. Thus the reactions with various proportions of reactants can be shown as: $EtC(OEt)_3 + PCl_3 \rightarrow EtCO_2Et + EtCl + EtOPCl_2$; $2\ EtC(OEt)_3 + PCl_3 \rightarrow 2\ EtCl + (EtO)_2PCl + 2\ EtCO_2Et$; $3\ EtC(OEt)_3 + PCl_3 \rightarrow 3\ EtCO_2Et + 3\ EtCl + P(OEt)_3$. Arnold [*Ann.* 240, 194 (1887)] described a reaction of PCl_3 with 1 mole of $HC(OEt)_3$, which presumably gave some $(EtO)_3P$, along with EtCl and HCO_2Et. Bassett [*Chem. News* 7, 158(1863)] used the 1:3 reagent ratio and claimed the formation of mono-Et ester of H_3PO_3. Friedel and Ladenburg [*Ber.* 3, 17(1870)] from PCl_3 with Et silicopropionate obtained a mixt. b. 110–50°, from which no individuals were isolated (the statement of Post [*Chemistry of Aliphatic Orthoesters*, 1943, p. 64 (*C.A.* 37, 4404⁶)] is misleading). PCl_3 (44.1 g.) with 50 g. $Si(OEt)_4$ showed visible action heating 4 hrs. on a steam bath yielded no EtCl; distn. of the mixt. gave 27.5 g. $EtOPCl_2$, b. 116–18°, d_{20}^{20} 1.3160, 14 g. $(EtO)_2SiCl_2$, b. 137–8°, d_{20}^{20} 1.1290, 13.1 g. $(EtO)_3SiCl$, b. 154–6.5°, d_{20}^{20} 1.0460, 7.2 g. intermediate cut, b_{20} 63–86°, and 8.8 g. mixt., b. 120–50°. No $(EtO)_3P$ could be isolated. Other reactant proportions gave even less well-defined products. The analyses for P in the presence of Si were run by amperometric titration (cf. Saikina and Toropova, *C.A.* 48, 1889h).

G. M. Kosolapoff

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USSR

Reaction of condensation of 3-camphenilanaldehyde with ketones and esters. B. A. Arbuzov and L. A. Mukhametdova. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 727-33(Engl. translation).—See *C.A.* 49, 962i.

H. L. H.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

USSR.

Reactions of dichloromethyl ethers of glycols with sodium alcoholates. B. A. Arbuzov and G. M. Vinokurova. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 735–46 (Engl. translation).—See *C.A.* 49, 1554c. H. L. H.

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Arbuzov, B. A.

USSR

Isomerization of terpene hydrocarbons by silica gel under conditions of chromatographic adsorption analysis. B. A. Arbuzov and Z. G. Isaeva. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 747-52 (Engl. translation).—See *C.A.* 49, 16544. H. L. H.

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ARBUZOV, B.A.; KATAYEVA, L.M.

The structure of molecules of secondary amines. Soob.o nauch.rab. chl.VKHO no.1:34-36 '53. (MIRA 10:10)
(Stereochemistry) (Amines)

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ARBUZOV, B A

Taririnic acid. B. A. Arbuzov and B. P. Lugovkin (V. I. Ul'yanov-Lenin State Univ., Kazan). *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 419-24 (1953); cf. Arnaud, *Compt. rend.* 114, 79(1892); 134, 473(1902).—To 50.7 g. petroselinic acid in dry $CHCl_3$ was slowly added 30 g. Br in 40 ml. $CHCl_3$ with good cooling; after evapn. of the solvent there was obtained 77 g. *6,7-dibromostearic acid*, m. 37-8° (from Et_2O). This (66 g.) in 150 ml. abs. EtOH and 26 g. powd. KOH was heated 5 hrs. on a steam bath, then treated with 24 g. powd. KOH and heated 5 hrs. longer; after diln. with 500 ml. H_2O and neutralization with dil. H_2SO_4 there was formed 65% *taririnic acid(6-octodecyne-1-carboxylic acid)* (I), m. 80.5° (from EtOH), b_1 206-7°, b_2 198°; with 3 g. Br in $CHCl_3$, 5 g. of the acid gave 7.6 g. *di-Br deriv.*, m. 33°. I (12 g.) with 3 g. PCl_3 heated 15 min. to 65-85° gave 72.7% *taririnoyl chloride*, b_3 192°, d_{20}^{20} 0.9344 (heated with H_2O 1 hr. it gave I). Heating 5 g. I with 8 g. Ac_2O in sealed tube 1 hr. at 180-90° gave, after a lengthy evapn., 90% of the *anhydride* of I, m. 47.5-8° (from dry Et_2O) (this heated 1 hr. with dil. NaOH readily gave I); 1 g. *anhydride* with 0.7 g. Br in $CHCl_3$ gave the *tetrabromide*, m. 33.5°. I chloride (6.3 g.) added to concd. NH_4OH with cooling gave 96.7% *amide* (II), m. 86° (from abs. EtOH), which (6 g.) in $CHCl_3$ treated with 4 g. Br gave the *di-Br amide* of I, m. 80-80.5° (from EtOH). II (16.7 g.) and 8.5 g. P_2O_5 heated at about 3 min. to 180° gave 16.6% *nitrile*, b_1 158-9°, n_D^{20} 1.4758, d_{20}^{20} 0.8799. Refluxing 10 g. I in 20 g. abs. MeOH with 4 g. H_2SO_4 6 hrs. gave 92.3% I *Me ester*, b_2 157-8°, b_3 164-6°, n_D^{20} 1.4560, d_{20}^{20} 0.8975, which with Br in $CHCl_3$ gave the *di-Br deriv.*, m. 27-7.5° (from EtOH-Et_2O). Similarly was prepd. 91.6% I *Et ester* (III), b_1 163-4°, b_3 202-4°, n_D^{20} 1.4540, d_{20}^{20} 0.8835, d_{10} 0.8821 (hydrolysis with 5% NaOH in 1.5 hrs. gave I), gave the *dibromide*, a yellow liquid, n_D^{20} 1.4773, d_{20}^{20} 1.1320; heating 1.5 g. III in 5 ml. AcOH with 0.65 g. iodine 2 hrs. at 70-80° gave the *di-iodide*, m. 26-6.5° (from abs. EtOH). To 20.1 g. III in 100 ml. dry BuOH was added 7 g. Na; after heating 15-20 min. to complete the reaction, the mixt. was dild. with H_2O (15 ml.), heated at 100-20° 1 hr., washed with H_2O, salted out with NaCl, and the org. layer evapd. yielding 0.7 g. material, m. 204-6°. Crystn. from AcOH changed this material completely, yielding some I and a substance, m. 52-4°. The EtOH mother liquor after isolation of the product, m. 204°, gave 46.5% $Me(CH_2)_{10}C_7C(CH_2)_4CH_2OH$, b_1 183-4°, m. 29-30°; the latter (1 g.) with 0.7 g. Br in $CHCl_3$ gave a *dibromide*, an oily liquid, and a *tetrabromide*, m. 51-3°. G. M. K.

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LUGOVKIN, B.P.; ARBUZOV, B.A.

Alkylating amines with acid chloride of dialkylphosphoric acid. Soob.o nauch.rab.chl.VKHO no.2:22-23 '53. (MIRA 10:10)
(Alkylation) (Amines) (Phosphoric acid)

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ARBUZOV, B. A.

CZECH

Reaction of some chloro and bromo derivatives with sodium diethyl phosphite. B. A. Arbuzov and N. P. Bogonosova [illegible]

[illegible]

was treated [illegible]

[illegible]

the reaction [illegible]

[illegible]

drolyzed with [illegible] m. 38–40° [illegible]

gave [illegible]

[illegible]

fluxing [illegible]

[illegible]

49.35% PhCH[illegible] b[illegible] 153–4°, d[illegible] 1.1200, n[illegible] 1.4965; hydrolysis gave the free acid, m. 169–70° (from EtOH). Similar reaction with $PhCH_2Br$ gave 44% yield of the same ester, b_{12} 153–5°, d_0^0 1.1189, n_D^{20} 1.4892, while $PhCH_2I$ gave 21.1% yield of the same ester. To $(EtO)_2PONa$ (from 15.85 g. ester) in Et_2O was added 1[illegible] g. $(Me_2CBr)_2$ resulting in a rapid reaction (7 min.); after filtration the mixt. yielded 50% $Me_2C:CMe_2$.

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.; BOGONOSTSEVA, N.P.

Interaction of certain derivatives of chlorine and bromine with sodium diethylphosphide. Soob.o nauch.rab.chl.VKHO no.4:39-42 '53. (MIRA 10:10)

(Chlorine) (Bromine) (Sodium phosphides)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

USSR/ Chemistry - Synthesis

Card 1/1 : Pub. 40 - 8/22

Authors : Arbuzov, B. A., and Mukhamedova, L. A.

Title : Condensation reaction of camphenilane aldehyde with ketones and esters

Periodical : Izv. AN SSSR, Otd. khim. nauk 5, 820-828, Sep-Oct 1953

Abstract : The condensation reaction of camphenilane aldehyde with acetone, methylethylketone, acetophenone, mesityl oxide and methylheptenone, was investigated. The condensation products, their physico-chemical properties, are described. The characteristics of unsaturated esters, derived from condensation of camphenilane aldehydes with ethyl acetate and ethyl acetoacetate, are listed. Four references: 3-USSR and 1-German (1901-1940).

Institution : The V. I. Lenin State University, Kazan

Submitted : May 18, 1953

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

USSR/Chemistry - Synthesis

Card 1/1 : Pub. 40 - 9/22

Authors : Arbuzov, B. A., and Vinokurova, G. M.

Title : Reactions of dichloromethyl glycol ethers with sodium alcoholates

Periodical : Izv. AN SSSR. Otd. khim. nauk 5, 829-842, Sep-Oct 1953

Abstract : The reaction of chlormethylation of propylene glycol-1,2 and trimethylene glycol, which resulted in the formation of two hitherto unknown homologous dichloromethyl ethers, was investigated. The authors also studied the reactions of dichloromethyl ethers of ethylene glycol, propylene glycol-1,2-trimethylene glycol, butylene glycol-1,3 and butinediol-1,4 with methylate, ethylate, isopropylate, butylate and sodium isobutylate and described the products obtained from these reactions. Twelve references: 6-USSR; 1-French and 5-German (1860-1952). Tables.

Institution : The I. V. Lenin State University, Kazan

Submitted : May 19, 1953

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

USSR/ Chemistry Hydrocarbon isomerization

Card 1/2 : Pub. 40 - 10/22

Authors : Arbuzov, B. A., and Isaeva, Z. G.

Title : Isomerization of terpene hydrocarbons with silica gel in conditions of adsorption analysis

Periodical : Izv. AN SSSR. Otd. khim. nauk 5, 843-849, Sep-Oct 1953

Abstract : The effect of silica gel in conditions of adsorption analysis on the isomerization of terpene hydrocarbons was investigated. It was found that alphapinene isomerizes easily into camphene, dipentene and terpinolene; Δ^3 - carene isomerizes into dipentene and terpinolene; dipentene isomerizes into terpinolene which in turn undergoes further conversions. The isomerization of above compounds with silica gel was found to be analogous to the isomerization of the very same hydrocarbons with

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Izv. AN SSSR. Otd. khim. nauk 5, 843-849, Sep-Oct 1953. (Additional card)

Card 2/2 Pub. 40 - 10/22

Abstract : activated clays at temperatures close to their boiling points. Twenty references: 8-USSR; 2-German; 2-French; 6-Czech; 1-Swiss and 1-USA (1915-1952). Tables; graphs.

Institution : The V. I. Lenin State University, The A. M. Butlerov Scientific Research Chemical Institute, Kazan

Submitted : May 20, 1953

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ARBUZOV, B.A., akademik.

Paris Conference on the Study of Molecular Structure. Vest.AN SSSR 23 no.10: 90-93 O '53. (MLRA 6:11)
(Paris--Molecular theory--Congresses) (Congresses--Molecular theory--Paris)

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ARBUZOV, B. A.

Physical And Physical Chemistry

6

3

Chem

The parachors of esters of phthalic and terephthalic acids. B. A. Arbuzov and Z. Z. Valeeva (V. I. Ul'yanova-Lenina State Univ., Kazan). Zhur. Fiz. Khim. 27, 713-18 (1953).—The surface tension γ (dynes/cm.) at 20° was for Me phthalate (Me_2R) 41.85, Et_2R 37.38, Pr_2R 35.25, Bu_2R 33.40, $(C_5H_{11})_2R$ 32.20, $(C_6H_{13})_2R$ 22.00, $(C_8H_{18})_2R$ 31.52, and $(C_{10}H_{21})_2R$ 31.75. It was for Et terephthalate (Et_2R') 32.89 at 55°, Pr_2R' 34.68 at 20°, Bu_2R' 33.72 at 20°, $(C_5H_{11})_2R'$ 29.90 at 55°, $(C_6H_{13})_2R'$ (m. 41–42.5°) 30.0 at 55°, $(C_8H_{18})_2R'$ (m. 44–45°) 29.75 at 55°, $(C_{10}H_{21})_2R'$ (m. 55–57°) 29.25 at 65°. At 20°, γ of benzoates was: hexyl 32.82, octyl 32.66, nonyl 32.59, and decyl 32.70. The calcd. parachors, with $(C)C_6H_4(C)$ = 174.8, (C)COO(C) = 66.4, ortho = − 2.7, correction = − 4.0, are greater than the exptl. values, and the difference increases with the no. of carbons in the alkyl radical. The difference between the next homologs is 4.4 for phthalates, 2.2 for terephthalates, and 1.1 for benzoates.

J. J. Bikerman

(CA 48 no. 1:13 '54)

MF 7-28-54

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

Viscosity and structure of esters of phthalic acids. B. A. Arbuzov and Z. Z. Valeeva (V. I. Ul'yanov-Lenin Univ., Kazan). *Zhur. Fiz. Khim.* 27, 790-2(1953); cf. *C.A.* 48, 136.—The viscosities were measured at 20° of benzene solns. of hexyl terephthalate, octyl terephthalate, nonyl phthalate, nonyl *m*-phthalate (I), nonyl terephthalate, decyl *m*-phthalate (II), decyl terephthalate, hexyl carbonate (III), octyl carbonate (IV), decyl carbonate (V), hexyl orthopropionate (VI), and octyl orthopropionate (VII) (concns. 1-10%). By means of the tabulated exptl. data, these esters were shown to have an elongated structure in benzene soln. The phthalates were prepd. by reaction of the ethyl phthalate with the appropriate alc. in the presence of Na, and the remaining esters were prepd. by the method of Arbuzov and Yuldasheva (*C.A.* 44, 3759c) and Yuldasheva (cf. *Uchenye Zapiski Kazan. Gosudarst. Univ. im. V. I. Ul'yanova-Lenina* 112, 35(1952)). The b.p., n_D^{20}, d_4^{20}, and surface tension (γ) at 20° in dynes/cm. in that order are for I, 233-3.5° (1 mm.), 1.4851, 0.9712, 32.23; for III, 128° (3 mm.), 1.4235, 0.9036, 28.05; for IV, 168-8.3° (4 mm.), 1.43853, 0.8826, 29.03; for V, 204-4.5° (4 mm.), 1.44265, 0.8839, 30.21; for VI, 172.5-3.5° (4 mm.), 1.43500, 0.8699, 27.35; for VII, 207-3° (2.5 mm.), 1.44295, 0.8664, 28.85. For II the m.p., b.p., d_4^{20}, and γ at 65° are 55-6°, 268.5-9.5° (1.5 mm.), 0.9329, and 29.32, resp.

J. W. Loweberg, jr.

Khimicheskiy institut imeni A.M. Butlerova

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Chem Abs, v. 48, 1-10-54
General + Physical Chemistry

The parachors of esters of mono- and dibasic acids. B. A. Arbuzov (V. I. Ul'yanova-Lenina State Univ., Kazan). *Zhur. Fiz. Khim.* 27, 983-7(1953); cf. preceding abstr.—The correction for "the parallel arrangement of chains," introduced by Gibling (*C.A.* 35, 6493[7]) is necessary also for parachors of compds. in which the chains cannot or are not likely to be parallel, as for terephthalates, fumarates, and esters of (:CCOOH)$_2$. J. J. Bikerman

Chem

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ARBUZOV, B. A.

Esters of diethylphosphinous acid. B. A. Arbuz

prepd. from [illegible] with [illegible] in the presence of either pyridine or Bu_3N in dry Et_2O under a CO_2 atm. The following bad smelling liquids are readily oxidized in air even the decyl esters fumes [illegible] the atm. [illegible] d_{20} and n_D^{20} given. [illegible] b_{100} [illegible], 0.8496, 1.4328; [illegible] b_{20} 87–9°, 0.8522, [illegible]; [illegible] b_{20} 78–9°, [illegible], 1.4320; Bu, b_{10} 54–5°, 0.8516, 1.4410; iso-Bu, b_{20} 80–2°, 0.8430, 1.438; C_6H_{13}, b_7 88–9°, 0.8503, 1.4448; C_7H_{15}, b_7 70–1°, 0.8547, 1.4495; C_8H_{17}, b_7 82–3°, 0.8579, 1.4520; C_9H_{19}, b_7 94–[illegible], 0.8584, 1.4525; $C_{10}H_{21}$, b_7 103.5–[illegible], 0.8531, 1.453. To 2.5 g. Et_2POBu was added the theoretical amt. of S, which led to temp. rise to 150°, indicating most vigorous addn.; distn. gave $Et_2P(S)OBu$, b_1 74–4.5°, 0.9779, 1.4833. To 2.7 g. Et_2POBu was added 0.2 g. BuI; within 4 min. the temp. of the mixt. rose to 190°, yielding Et_2BuPO, b_1 85.5–6.5°, 0.9290, 1.4589. $BrCH_2CO_2Et$ gave Et_2P[illegible], b_1 113–13.5°, 1.0733, 1.4638. Et_2POBu with [illegible] yields a viscous yellow fluid. $EtPCl_2$ adds S in the presence of $AlCl_3$ catalyst and Et_2PCl adds S rather energetically, yielding Et_2PSCl, b_2 90–90.5°, 1.1438, 1.5294. For the prepn. of Et_2PCl, cf. Beeby and Mann (*C.A.* 45, 9062a).

G. M. Kosolapoff

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Cyanoethylation of some glycols and preparation of the corresponding amines from the nitriles. B. A. Pozhil'tsova and B. A. Arbuzov. *Doklady Akad. Nauk S.S.S.R.* 91, 269-70(1953); cf. C.A. 42, 5848h.—Cyanoethylation of various glycols and amines with alk. catalysts gave the following dinitriles (b.p., d_{20}, and n_D^{20} shown): $O(CH_2CH_2CN)_2$, b_2 142-3°, 1.0027, 1.4400; $(CH_2OCH_2CH_2CN)_2$, b_2 162-5°, 1.0980, 1.4520; $(CH_2CH_2OCH_2CH_2CN)_2$, m. 40-1°; $NCCH_2CH_2OCH_2CH_2CH(OCH_2CH_2CN)Me$, b_2 168-71°, 1.0230, 1.4490; $MeCH(OCH_2CH_2CN)CH(OCH_2CH_2CN)Me$, m. 53-4°; $(CH_2OCH_2CH_2OCH_2CH_2CN)_2$, b_2 205-10°, 1.0983, 1.4570; $[CH_2O(CH_2CH_2O)_2OCH_2CH_2CN]_2$, b_2 215-25°, 1.0978, 1.4607; $PrN(CH_2CH_2CN)_2$, b_2 84-7°, 0.8772, 1.4550; $NCCH_2CH_2NHPr$, b_2 74-6°, 0.8859, 1.4390; $PhN(CH_2CH_2CN)_2$, b_2 165-7°, 0.9214, 1.4508; $PhNHCH_2CH_2CN$, b_2 151-7°, 0.9480, 1.4480. These were hydrogenated over Raney Ni at 100-20 atm. H to the diamines: $O(CH_2CH_2CH_2NH_2)_2$, b_2 93-4°, 0.9819, 1.4660 (di-Bz deriv., m. 105-10°); $(CH_2OCH_2CH_2CH_2NH_2)_2$, b_2 99-105°, 0.9904, 1.4670 (di-Bz deriv., m. 23-7°); $(CH_2CH_2OCH_2CH_2CH_2NH_2)_2$, b_2 125-30°, 0.9324, 1.4630 (di-Bz deriv., m. 41-2°); $MeCH(OCH_2CH_2CH_2NH_2)_2$, b_2 118-25°, 0.9618, 1.4622 (di-Bz deriv., m. 37.5-8.0°); $(CHMeOCH_2CH_2CH_2NH_2)_2$, b_2 125-50°, 0.9380, 1.4560 (di-Bz deriv., m. 39.5-40.5°); $O(CH_2CH_2OCH_2CH_2CH_2NH_2)_2$, b_2 108-15°, 1.0110, 1.4659 (di-Bz deriv., m. 36.5-7.5°); $H_2NCH_2CH_2CH_2OCH_2CH_2OCH_2CH_2OCH_2CH_2OCH_2CH_2CH_2NH_2$, b_2 145-55°, 1.0785, 1.4610 (di-Bz deriv., m. 37.5-8.0°); $PrN(CH_2CH_2CH_2NH_2)_2$, b_2 77-8°, 0.8617, 1.4480; $PrNH(CH_2CH_2CH_2NH_2)$, b_2 55-60°, 0.8437, 1.4450; $PhN(CH_2CH_2CH_2NH_2)_2$, b_2 75-80°, 0.9607, 1.4685; $PhNHCH_2CH_2CH_2NH_2$, b_2 67-9°, 0.9106, 1.4655.

G. M. Kosolapoff

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[illegible] of alkyl halides on esters of [illegible]

[illegible] (RO)$_2$SbX and ROR', with formation [illegible]

[illegible]

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Glycol esters of pyrophosphorous acid. B. A. Arbuzov, K. V. Nikonorov, O. N. Fedorova, G. M. Vinokurova and Z. G. Shishova (A. E. Arbuzov Chem. Inst., Kazan). *Doklady Akad. Nauk S.S.S.R.* 91, 817-20(1953).—Slow addn. of the calcd. amt. of H_2O and a base (pyridine, Me_2NPh, or Et_3N) to 2 moles $O.CH_2.CH_2.O.PCl$ dild. with 2-3 parts Et_2O at about −5° with stirring, filtering after 3 hrs. at room temp. and distn. of the filtrate gave [illegible]

1.136, 1.[illegible] Similarly were formed the following $CHMe\ CH_2\ O.POP(OR)_2$; *Et* [illegible] 1.4520; *Pr* [illegible]

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ARBUZOV, B. A.

Distr: 4E4j

Parachor and association of amines. B. A. Arbuzov and L. M. Kataeva. *Uchenye Zapiski Kazan. Gosudarst. Univ. im. V. I. Ul'yanova-Lenina, Khim.* 113, No. 8, 3-6(1953).—Calcd. of parachors for 16 amines (no data on surface tension or d. are shown) indicates that primary and secondary aromatic amines may be assocd., since the deviation of observed from calcd. values ranges from 1% to 2.8%, whereas tertiary amines yield deviations of less than 0.7%. Among the aliphatic amines all primary amines also are assocd., the degree of assocn. decreasing with increasing mol. wt. Only Me_2NH and Et_2NH show assocn. among the secondary aliphatic amines. Tertiary amines are not assocd. The results are based on Gibling's theoretical considerations of the parachor (*C.A.* 37, 4933[1]). G. M. Kosolapoff

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ARBUZOV, B.A.

Bonding material *M* and its use. B. A. Arbuzov. *Formovochnye Materialy* (Moscow: Mashgiz) 1954, 133-34; *Referat. Zhur., Khim.* 1955, No. 4447; cf. *U.S.S.R. Authors Copyright* 68, 593.—The bonding material *M* is a variety of carbamide resins contg. 45-50% of the resin. Its properties and use in core mixes is outlined. M. Hoseh

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Arbuzov, B.A.

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Arbuzov, B. A.

5

Esters of propylene glycol phosphoric and propylene glycol thiophosphoric acids. B. A. Arbuzov, K. V. Nikonorov, and Z. G. Shishova. Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1954, 711-16 (Engl. translation).—See C.A. 49, 13891b. B. M. R.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B.A.

Action of alkyl halides on esters of antimonous and thioantimonous acids. B. A. Arbuzov and O. D. Samoilova. CH
Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. 1954, 717-23
(Engl. translation).—See *C.A.* 49, 13888*h*. B. M. R.

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV B.A.

Anomalous reactions of diethyl sodiophosphite and triethyl phosphite with some halogen derivatives. B. A. Arbuzov and N. P. Bogoroitseva. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1954, 723-9(Engl. translation).—See *C.A.* 49, 13940g. B. M. R.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

USSR

Synthesis of esters of phosphonic acids containing heterocyclic nuclei. IV. Esters of phosphonic acids with isoxazole and quinoxaline radicals. B. A. Arbuzov and V. M. Zoro-strova (V. I. Ul'yanov-Lenin State Univ., Kazan). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 806-11; cf. *C.A.* 47, 4871c.—$(EtO)_3P$ (10 g.) preheated to 120-5°, treated dropwise with 7.91 g. 3-(chloromethyl)isoxazole, and the mixt. heated 1 hr. to 150-5° and distd. gave 59% *di-Et (3-isoxazolylmethyl)phosphonate*, $b_{0.1}$ 152-3°, d_4^{20} 1.1892, n_D^{20} 1.4660; similarly was obtained 21% *di-Me ester*, b_1 142-5°, d_4^{20} 1.2744, n_D^{20} 1.4670 (distn. of a larger amt. of the product was prevented by severe decompn.), as well as 65.5% *di-Pr ester*, $b_{0.1}$ 150-2°, d_4^{20} 1.1541, n_D^{20} 1.4675, and 35.5% *di-Bu ester*, b_1 155-6°, d_4^{20} 1.0750, n_D^{20} 1.4575 (the reaction was run at 170-80°, and finally at 185-95°). The di-Et ester was obtained in 17% yield from the (chloromethyl)isoxazole and $(EtO)_2PONa$ in Et_2O. Heating the di-Et ester 5 hrs. to 120-5° with dil. HCl gave an uncrystallizable tarry product. The di-Et ester (1.9 g.) refluxed 4.5 hrs. with 1 g. NaOH in 60 ml. H_2O, neutralized with HCl, evapd., extd. with abs. EtOH, the ext. evapd., and the residue boiled with $BaCO_3$ gave a yellowish *Ba salt*, $C_4H_7O_4NPBa$, of the free *(3-isoxazolylmethyl)phosphonic acid*, which was analyzed (the product was 1% high in Ba). Condensation of $(BrCH_2CO)_2$ with *o*-$C_6H_4(NH_2)_2$ in EtOH gave *2,3-bis(bromomethyl)quinoxaline*, m. 151-2°. This (2 g.) and 1.65 g. $(MeO)_3P$ refluxed 1.5 hrs. in 10 ml. C_6H_6, concd., heated 5 min. to 130°, then cooled and rubbed with petr. ether gave 70.8% *tetra-Me 2,3-quinoxalinebis(methylphosphonate)*, m. 115-16° (from Et_2O), sol. in H_2O; hydrolysis with 1:1 HCl 7 hrs. at 100° in a sealed tube and evapn. gave

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B.A. Arbuzov

yellow free *2,3-quinoxalinebis(methylphosphonic acid)*, decomp. 234° (from H_2O). Similarly was prepd. 50% *tetra-Et ester*, m. 92–3° (hydrolyzed with HCl to a crude acid, darkening at 210°), and 51.8% *tetra-iso-Pr ester*, m. 102–3° (from heptane); the *tetra-Pr ester* was prepd. but not in cryst. form. Similar reaction with $(EtO)_2PONa$ in Et_2O failed to take place, while in heptane as the solvent the reaction yielded some NaX and a viscous noncryst. product, which after hydrolysis with HCl gave only a tar. When 3.6 g. $(EtO)_2POH$ and 1.7 g. quinoxaline was treated with 8–10 drops EtOH-EtONa and heated on a steam bath 1.5 hrs., the mixt. solidified, yielding 77% *tetra-Et 1,4-dihydro-2,3-quinoxalinebis(methylphosphonate)*, m. 168–70° (from C_6H_6), which, heated with 10% HCl in sealed tube 1 hr. at 100°, gave an uncrystallizable reddish mass; hydrolysis with dil. aq. NaOH also gave a tar. MeOH-MeONa added to mixts. of 2,3-dimethylquinoxaline with either $(MeO)_2POH$ or $(EtO)_2POH$ produced a red color, which changed to blue; the product was uncrystallizable and undistillable in the case of the Me ester, while the Et ester apparently failed to react, as the initial materials could be isolated. Thus 2 moles of a dialkyl phosphite add across the C:N bonds of quinoxaline unless the 2,3-positions are occupied by Me radicals.

G. M. Kosolapoff

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ARBUZOV, B.A.

USSR

Dipole moments of some derivatives of ethylphosphinic and ethylphosphonic acids

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basis of the moment [illegible] value
value of the dipole moment agrees with the [illegible] value
based on typical pyramidal structure (3.05 D.) with free
rotation of the OR group and [illegible] moment of 0.8 D. dis-
[illegible] in P to C [illegible] G. M. [illegible]

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

1/ Esters of propylene glycol phosphoric and propylene glycol thiophosphoric acids. B. A. Arbuzov, K. V. Nikonorov, and Z. G. Shishova (A. E. Arbuzov Chem. Inst., Kazan Branch Acad. Sci. U.S.S.R.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 823-9.—Addn. of 46.65 g. $POCl_3$ at −3° in 2 hrs. to 89.4 g. $PhNEt_2$ and 22.8 g. $MeCH(OH)CH_2OH$ (I) in Et_2O, followed by 2.5–3 hrs. at room temp., gave after filtration and distn. 21% $O.CH_2.CHMe.O.P(O)X$ (II, X = Cl) (III), b_4 102–5°, d_{20} 1.4210, n_D^{20} 1.4520. Similar reaction of 68 g. $PSCl_3$ and 63.5 g. pyridine in Et_2O with 30.5 g. I added over 1 hr. at −3°, followed by 2 hrs. at 35°, gave 43.5% of the *thioxo analog* (IV) of III, b_2 82–4°, d_{20} 1.3902, n_D^{20} 1.5090. III (25 g.) added to EtONa (from 3.07 g. Na) suspended in Et_2O at 0–2°, followed by several hrs. at room temp. gave 24% II (X = OEt), b_1 105–8°, d_{20} 1.208, n_D^{20} 1.4265. The following II were similarly prepd. (X, % yield, b.p., d_{20}, and n_D^{20} given): *MeO*, 33, b_1 114–18°, 1.273, 1.4250; *PrO*, 34.8, b_1 116–18°, 1.1623, 1.4290; *BuO*, 32.2, b_1 127–30°, 1.121, 1.4312; *iso-BuO*, 32.2, b_1 122–4°, 1.133, 1.4310. IV with ROH in Et_2O in the presence of pyridine gave: *MeO*, 41.8, b_{11} 121–3°, 1.2639, 1.4828; *EtO*, 55, b_4 107–8°, 1.209, 1.4770; *PrO*, 61, b_4 110–12°, 1.187, 1.4741; *iso-PrO*, 38, b_2 104–6°, 1.188, 1.4740; *BuO*, 52.4, b_1 114–16°, 1.1435, 1.4730; *iso-BuO*, 38, b_1 112–15°, 1.138, 1.4720. All the esters were tested as insecticides against the flour weevil; all were much less effective than tetra-Et pyrophosphate or thionopyrophosphate (no specific activities are cited).

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

Action of alkyl halides on esters of antimonous and thioantimonous acids. B. A. Arbuzov and O. D. Samoilova (V. I. Ul'yanov-Lenin State Univ., Kazan). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1954, 830-6; cf. *C.A.* 46, 7516b; 48, 10540b.—Heating 7 g. $(EtO)_3Sb$ with 7.5 g. iso-AmOH to 110-20° yielded 3.6 g. EtOH and 7.3 g. $(iso\text{-}AmO)_3Sb$, b_1 150.5-1°, d_{20} 1.180, n^{20}_D 1.4704. Heating 15 g. $(EtO)_3Sb$ and 8.3 g. MeI in sealed tube 3 hrs. at 180-5° gave 61.5% $(EtO)_2SbI$, m. 72-6°, and 5.1 g. unreacted $(EtO)_3Sb$. EtI similarly gave in 3.5 hrs. at 170-80° 55.6% $(EtO)_2SbI$ along with Et_2O, some Sb, iodine, and Sb_2O_3. EtBr in a similar reaction gave in 4 hrs. at 190-5° 48% $(EtO)_2SbBr$, m. 66-7°, and some Et_2O, Sb, iodine, and Sb_2O_3. $(EtO)_3Sb$ (15 g.) and 7.2 g. PrBr in 6 hrs. at 200-5° gave 4.6 g. unreacted $(EtO)_3Sb$ and 29% $(EtO)_2SbBr$, along with 2.4 g. EtOPr and some Sb_2O_3. Heating 15 g. $(BuO)_3Sb$ with 6.2 g. MeI 3.6 hrs. at 185-90° gave 2.9 g. MeOBu, 54% $(BuO)_2SbI$, b_1 161-3°, d_{20} 1.0481, some Sb, Sb_2O_3, and iodine. EtBr in 12 hrs. at 200-10° similarly gave 49.9% $(BuO)_2SbBr$, b_1 149-50°, d_{20} 1.5931, 2.1 g. BuOEt, and some Sb_2O_3. $(iso\text{-}AmO)_3Sb$ and MeI in 6 hrs. at 185-200° gave some $MeOCH_2CH_2CHMe_2$ along with 43.2% $(iso\text{-}AmO)_2SbI$, b_1 155-6°, d_{20} 1.6315, some iodine, Sb and Sb_2O_3. With EtBr the products, after 9 hrs. at 185-210° were Sb_2O_3 and 42% $(iso\text{-}AmO)_2SbBr$, b_1 146-8°, d_{20} 1.5559. No reaction took place between $(EtO)_3Sb$ and $C_6H_{11}Cl$ in 8 hrs. at 200-15°. Heating 10 g. $(EtS)_3Sb$ and 4.8 g. MeI 2.5 hrs. at 80-5° gave some Sb, S, and iodine along with MeSEt and 26.4% $(EtS)_2SbI$, b_1 162-3°, d_{20} 2.2030. Reaction with EtI in 1.5 hrs. at 75-80° gave 46% $(EtS)_2SbI$, b_1 161-2°, d_{20} 2.2028, along with Et_2S. $(EtS)_3Sb$ (10.5 g.) and 3.9 g. EtBr in 3 hrs. at 70-5° gave 2.3 g. Et_2S and 46.8% $(EtS)_2SbBr$, b_1 151-2°, d_{20} 2.1090. Addn. of 3.2 g. $ClCH_2$-

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B. A. Arbuzov and O. D. Samoilova

OBu to 9 g. $(BuO)_3Sb$ gave a vigorous reaction yielding 3.0 g. $CH_3(OBu)_3$ and 82% $(BuO)_2SbCl$ (I), b_{11} 148-9°, d_{20} 1.5073. Addn. of 2.1 g. $ClCH_2OBu$ to 5.2 g. I gave an exothermic reaction (mixt. crystd. on cooling), yielding 2.4 g. $CH_3(OBu)_3$ and 86% $BuOSbCl_2$, m. 84-5°, b. 124-6°. Heating 10 g. $(EtO)_3Sb$ and 6.5 g. $BrCH_2CO_2Et$ 12 hrs. at 160-70° gave some $EtOCH_2CO_2Et$ and 66.6% $(EtO)_2SbBr$, m. 67-9°, b_{11} 125-6°. Heating 15 g. $(EtO)_3Si$ with 5.8 g. $MeOCH_2Cl$ 36 hrs. at 250-60° resulted in no detectable reaction, except for decompn. of some $MeOCH_2Cl$. Thus esters of the type $(RO)_3Sb$ do not react with RX according to the Arbuzov reaction, but probably form adducts which cleave into an ether and dialkoxyhalostibine. Esters of type $(RS)_3Sb$ appear to react in 2 paths, with intermediate formation of a complex of either pentavalent Sb or of oxonium type at the S atom; cleavage of the complex yields the described products. G. M. Kosolapoff

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ARBUZOV, B. A.

✓ Synthesis of some organ... phoric acid. B. A. Arbu...

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ARBUZOV, B. A.

USSR/ Chemistry

Card : 1/1

Authors : Arbuzov, B. A., and Mukhamedova, L. A.

Title : Effect of alcohols on oxides of bicyclic terpenes. Part 3.- Acetals of camphenilane aldehyde

Periodical : Izv. AN SSSR, Otd. Khim. Nauk., 3, 442 - 447, May - June 1954

Abstract : The reaction between camphene oxide with primary alcohols (ethyl, n-butyl, isobutyl, n-octyl) and secondary alcohol (isopropyl) was investigated in the presence of sulfuric acid. The derivation of acetals of camphenilane aldehyde obtained as result of reaction between camphene oxides and primary alcohols and consequent isomerization of the oxide, is described. Data are also given on the products derived from the reaction between camphene oxides and secondary alcohols. One USSR reference. Tables.

Institution : The V. I. Lenin State University, Kazan

Submitted : May 18, 1953

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USSR/ Chemistry

Card : 1/1

Authors : Arbuzov, B. A., and Mukhamedova, L. A.

Title : Condensation of campholene aldehyde with ketones and esters

Periodical : Izv. AN SSSR, Otd. Khim. Nauk., 3, 448 - 455, May - June 1954

Abstract : The specific unsaturated ketones obtained from the condensation of campholene aldehyde with acetone, methylethyl ketone, acetophenone, mesityl oxide and methylheptene, are described. The chemical properties of campholene acetic ester and campholene acetoacetic ester derived from the condensation of campholene aldehyde with ethyl acetate and ethyl acetoacetate, are also described. Three references: 2 USSR, 1 German.

Institution : The V. I. Lenin State University, Kazan

Submitted : May 18, 1953

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

USSR/ Chemistry Physical chemistry

Card : 1/1 Pub. 40 - 6/27

Authors : Arbuzov, B. A., and Shavsha-Tolkacheva, T. G.

Title : Dipole moments of orthopropionic and orthoformic acid esters

Periodical : Izv. AN SSSR. Otd. khim. nauk 4, 614 - 621, July - August 1954

Abstract : The dipole moments of various orthopropionic and orthoformic acid esters were measured and the results are shown in a table. It is evident that the dipole moments, of the above mentioned esters, are much higher than the dipole moments of orthocarbonic acid esters. An analogy between phosphorous acid esters and orthopropionic acid esters was established by the disposition of the dipole moments of individual bonds. The interatomic spaces of various molecular ester models were calculated with consideration of the affective radius of the van der Waals forces. Nine references: 6 USSR; 2 German and 1 USA (1929 - 1951). Tables.

Institution : The V. I. Lenin State University, The A. M. Butlerov Scientific Research Institute, Kazan

Submitted : June 25, 1953

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ARBUZOV, B. A.

USSR/ Chemistry Physical chemistry

Card : 1/1 Pub. 40 - 7/27

Authors : Arbuzov, B. A., and Vinogradova, V. S.

Title : Parachors of mono-esters of ethylphosphinous acid

Periodical : Izv. AN SSSR. Otd. khim. nauk 4, 622 - 626, July - August 1954

Abstract : Data on the parachors of many mono-esters of ethylphosphinous acid and the constants of these esters, are presented. Excellent conformity between the found and computed parachor values was observed during the reaction of the ester chains of the different molecules. The parachor and molecular weights data, which were determined cryoscopically, indicate the monomerism rather than the association of the investigated esters. Thirteen references: 8 USSR and 5 USA (1942 - 1953). Tables.

Institution : The V. I. Lenin State University, The A. M. Butlerov Scientific Research Institute of Chemistry, Kazan

Submitted : June 19, 1953

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

USSR/ Chemistry Synthesis

Card : 1/1 Pub. 40 - 9/27

Authors : Arbuzov, B. A., and Rizpolozhenskiy, N. I.

Title : Ethylphosphonous acid esters and some of their conversions. Part 4.- Synthesis of ethyldiethylamidoformylphosphinic acid esters

Periodical : Izv. AN SSSR. Otd. khim. nauk 4, 631 - 635, July - August 1954

Abstract : The synthesis of ethyldiethylamidoformylphosphinic acid esters, through the reaction of diethylcarbamic acid chloride with sodium salts of ethylphosphinic acid esters, is described. The yield of the reaction product in this case was found to be much lower than the yield obtained during regrouping of absolute ethylphosphinic acid esters. The physical properties, of the esters obtained, are shown in a table. Seven references: 5 USSR; 1 USA and 1 German (1897 - 1952).

Institution : Acad. of Sc. USSR, Kazan Branch, The A. E. Arbuzov Chemical Institute

Submitted : June 19, 1953

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.; BOGONOSTSEVA, N.P.

[redacted]

Abnormal reactions of sodium diethylphosphide and triethylphosphite with certain halogen derivatives. Izv.AN SSSR Otd.khim. nauk no.5:837-845 S-O '54. (MLRA 8:3)

1. Nauchno-issledovatel'skiy khimicheskiy institut im.A.M. Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I. Ul'yanova-Lenina.

(Phosphides)(Ethyl phosphites)(Halides)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

USSR/ Chemistry - Insecticides

Card 1/2 Pub. 40 - 13/27

Authors : Arbuzov, B. A.; Alimov, P. I.; Zvereva, M. A.; Neklesova, I. D.; and Kurdina, H. A.

Title : Synthesis of certain organic derivatives of thiopyrophosphoric acid

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1038-1041, Nov-Dec 1954

Abstract : Experiments were conducted for the purpose of obtaining new insecticides of the thiopyrophosphoric acid series. Diethylthiophosphoric acid was synthesized by adding sulfur to diethylphosphorous acid in the presence of three different amines -(triethylamine, pyridine and diethylaniline)-

Institution : Acad. of Sc., USSR, Kazan Branch, The A. E. Arbuzov Chemical Institute

Submitted : January 16, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1038-1041, Nov-Dec 1954

Card 2/2 Pub. 40 - 13/27

Abstract : The synthesis of ethyl ethers, mixed alkyl ethera and ether-amides of monothio- and dithiopyrophosphoric acid is described. The effectiveness of the insecticides was tested on various small animals and the results are [illegible]

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

USSR/ Chemistry - Synthesis

Card 1/1 Pub. 40 - 14/27

Authors : Arbuzov, B. A.; Alimov, P. I.; and Zvereva, M. A.

Title : Synthesis of certain N-substituted amides of diethylphosphoric acid

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1042-1046, Nov-Dec 1954

Abstract : Two methods are described for the synthesis of amides of diethylphosphoric and diethylphosphorous acids in which the hydrogens of the amide group are replaced by different acid radicals. The derivation of certain N-substituted amides of diethylphosphoric acid from the reaction of halides with sodium derivatives of methylamide of diethylphosphoric acid is announced. The physico-chemical characteristics of the amides are listed. Two references: 1 USA and 1 German (1910-1950). Table

Institution : Acad. of Sc., USSR, Kazan Branch, The A. E. Arbuzov Chemical Institute

Submitted : January 16, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

USSR/ Chemistry - Synthesis

Card 1/1 Pub. 40 - 15/27

Authors : Arbuzov, B. A.; Alimov, P. I.; Zvereva, M. A.; Neklesova, [illegible] D.; and Kurdina, M. A.

Title : Synthesis of amides of organic phosphoric acid derivatives

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1047-1052, Nov-Dec 1954

Abstract : The derivation of numerous organo-phosphorous compounds is announced and some of their physico-chemical [illegible] are described. A thorough analysis of these organophosphorous derivatives revealed together with their [illegible] insecticide [illegible]

Institution : Acad. of Sc., USSR, Kazan Branch, The A. E. Arbuzov Chemical Instit.

Submitted : January 16, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

USSR/ Chemistry Isomerization processes

Card : 1/1 Pub. 151 - 32/35

Authors : Arbuzov, B. A., and Isaeva, Z. G.

Title : About the isomerization of bicyclic terpene oxides during reaction with acetic anhydride

Periodical : Zhur. ob. khim. 24, Ed. 7, 1250 - 1259, July 1954

Abstract : The reaction of acetic anhydride with oxides of alpha-pinene, Δ^3 -carene and camphene was investigated to determine the behavior (isomerization) of oxides of bicyclic terpene hydrocarbons in catalyst-free reactions. The variety of products formed during the reaction of bicyclic terpene oxides with acetic anhydride, which was found to be very complex, is described. Three USSR, 1 USA and 1 German reference.

Institution : State University, The A. M. Butlerov Scient.-Research Institute, Kazan

Submitted : February 22, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.
USSR/Chemistry

Card : 1/1

Authors : Arbuzov, B. A. Academician, and Kataev, E. G.

Title : Reaction of diene hydrocarbons with sulfur and selenium

Periodical : Dokl. AN SSSR, 96, Ed. 5, 983 - 985, June 1954

Abstract : Direct contacting of piperylene and hexadiene-2,4 with melted sulfur at 360 - 420° yielded 36 and 28% resp. of 2-methylthiophene and 2,5-dimethylthiophene. The reaction of divinyl, piperylene and hexadiene-2,4 with selenium at 360 - 420° led to the derivation of selenophene, 2-methylselenophene and 2,5-dimethylselenophene. An increase in reaction temperature to 500° decreased the yield of selenophenes as well as the recovery of the unreacted diene as result of the excessive gas formation and resinification. At temperatures less than 360° one could observe dimerization of the dienes and there was practically no heterocyclization. Five references. Table.

Institution : The V. I. Ulyanov-Lenin State University, The A. M. Butlerov Chemical Institute, Kazan

Submitted : April 20, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

USSR/Chemistry - Synthesis

Card 1/1 Pub. 22 - 23/47

Authors : Arbuzov, B. A., Academician; and Vinogradova, V. S.

Title : Synthesis of certain beta-ketophosphinic acid esters

Periodical : Dok. AN SSSR 99/1, 85-87, Nov 1, 1954

Abstract : Numerous new and already known beta-ketophosphinic acid esters were synthesized and their properties investigated by means of spectral and dipole moment methods. The data regarding these esters are presented in the table. Data regarding absorption spectra, combined light diffusion spectra and dipole moments of the compounds, described in the table, will be presented in a later report. Eight references: 6-USSR and 2-German (1912-1954). Table.

Institution : The V. I. Lenin State University, The A. M. Butlerov Scientific-Research Institute of Chemistry, Kazan

Submitted : July 5, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A., akademik.

The A.M.Butlerov Chemical Research Institut. Uch.zap.Kaz.un.114 no.9:53-76 '54. (MLRA 10:3)
(Kazan--Chemistry--Study and teaching)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A., akademik.

Basic trends in the activity of the Department of Organic Chemistry of Kazan University from 1917to 1954. Uch.zap.Kaz.un. 114 no.9:77-86 '54. (MLRA ,10:3)

(Kazan--Chemistry, Organic--Study and teaching)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B.A.

Some esters of dithiophosphoric acid as insecticides.

B. A. Arbuzov, K. V. Nikonorov, and G. M. Vinokurova
(A. E. Arbuzov Chem. Inst., Acad. Nauk S.S.S.R., Kazan)

Izvest. Akad. Nauk S.S.S.R. Otdel. Khim. Nauk 1955

[illegible] Engl. translation) [illegible] $Me_2O_3PS_2H$ [illegible] g. EtSH was added at −10° [illegible] g. AcH, keeping the temp. under 0°. After 2 hrs. at room temp. the 2 ml. H_2O that [illegible] AcH, the resulting H_2O being [illegible] at room temp. the mixt. [illegible] $Et_2O_3P(S)_2CHMeSEt$, b_1 118 [illegible] The same product was obtained [illegible] $Et_2O_3PS_2H$ 4.6 g. AcH, and [illegible] Na_2CO_3 and H_2O and [illegible] Similarly in 4 hrs. [illegible] $(PrO)_2P(S)_2CHMeSEt$, b_1 122.8°, n_D^{20} 1.5130, d_{20} 1.0920, $(BuO)_2P(S)_2CHMeSEt$, n_D^{20} 1.5085, d_{20} 1.060, obtained in 73.5% yield, could not be distd. without decompn. Similarly undistillable was $(iso\text{-}BuO)_2P(S)_2CHMeSEt$, 67.5%, n_D^{20} 1.5060, d_{20} 1.0522. The di-Me and di-Et esters showed weak insecticidal action against the barn weevil after 2-3 day exposure; the other esters were very much less potent.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

5

CA Action of halogens on esters of antimonous acid. B. A. Arbuzov and O. D. Samoilov (V. I. Ul'yanov-Lenin Univ., Kazan). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1955, 670-80; cf. *C.A.* 49, 13888*h*.—Addn. of 7.5 g. Cl_2 with cooling to 30 g. $(EtO)_3Sb$ in $CHCl_3$ with good protection against access of moisture gave after evapn. of the solvent $(EtO)_3SbCl_2$, m. 50-3° (from Et_2O). Heating to 100° failed to yield any volatile products, but at 145-50° vigorous decompn. set in, yielding some 7% EtCl and 22.8% Et_2O in the distillate, while the residue, a porous solid, amounted to 60.2%, which on distn. gave 8.6% $SbCl_3$, b_{10} 116-18°, m. 70-2°. Similarly addn. of 18.6 g. Br_2 to 30 g. $(EtO)_3Sb$ in $CHCl_3$ with cooling gave $(EtO)_3SbBr_2$, m. 64-7°, 45 g. of which decomp. vigorously at 130-5°, yielding 5.1 g. EtBr, 3 g. Et_2O, 4.1 g. EtOH, and 2.2 g. $BrCH_2CO_2Et$. Addn. of 5.2 g. Cl_2 to cooled $(BuO)_3Sb$ (25 g.) gave viscous liquid $(BuO)_3SbCl_2$, d_{20} 1.4073; this (27 g.) heated to 130-5° decompd. vigorously, yielding some $SbCl_3$ (isolated by distn. of the residue), 3.7 g. BuCl, and 7.1 g. Bu_2O. Similarly was prepd. reddish oily $(BuO)_3SbBr_2$, d_{20} 1.7052; this (36 g.) decompd. at 125-30° yielding 2.2% PrCHO, 4.4% BuBr, 28.9% BuOH, 4.4% Bu_2O, 2.5% $PrCO_2Bu$, and a residue from which some $SbBr_3$ could be distd. Refluxing 25 g. EtOH soln. of BzH with 3 g. $(EtO)_3SbBr_2$ 25 hrs. gave 2.6 g. pptd. white solid, while the filtrate on distn. gave 67.2% unchanged BzH, 11.2% $PhCH_2OH$ and 9% BzOEt; the residue after 1st distn. was a dark mass, from which was isolated 1.2 g. *m*-$BrC_6H_4CO_2Ph$, m. 63-4°. When 30 g. iso-PrCHO and 5 g. $(BuO)_3SbBr_2$ were mixed in a sealed tube a reaction commenced at room temp.; after 6 hrs. at 90-100° the ppt. was sepd. and the filtrate gave 20.2 g. iso-PrCHO, 1.8 g. iso-BuOH, and 3.5 g. iso-$PrCO_2CH_2CHMe_2$. Refluxing EtOH soln. of BzH and $(BuO)_3SbCl_2$ 25 hrs. failed to cause any detectable reaction.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

2

Synthesis of phosphonic acid esters with heterocyclic radicals. V. Phosphonic acid esters with dihydrocoumarin radicals. B. A. Arbuzov and V. M. Zoroastrova (*Izv. Akad. Nauk SSSR* 1955 681—688). — Experimental research [illegible] dialkyl phosphonates [illegible] coumarin and 4 [illegible] 4 yiphosphonic [illegible] phonic acid were [illegible] phonate with 2 [illegible] coumarin did [illegible] were obtained: 3 : 4 dihydrocoumarin-4 yiphosphonic acid [illegible] dibutyl diethyl and dimethyl ester [illegible] coumarin-4 yiphosphonic acid and its dibutyl and diethyl esters, and the diethyl ester of 3 acetyl 3 : 4 dihydrocoumarin-4-yiphosphonic acid.

A. L. B.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Esters of ethylphosphinic acid and some of their transformations. Esters of [illegible]

[illegible]

1.4830, decomp. in moist air and in flames in contact with H_2O. This chloride treated with various alcs. in the presence of Et_3N in Et_2O readily gave the following esters $EtP(NEt_2)OR$ (R, % yield, b.p./mm., d_{20}, n_D^{20}, resp., shown): *Me*, 72, 49–50°/10, 0.8954, 1.4450; *Et*, 63, 53–4°/9, 0.8847, 1.4418; *Pr*, 65, 73–4°/10, 0.8820, 1.4439; *iso-Pr*, 61%, 63–[illegible]°/9, 0.8730, 1.4400; *Bu*, 61.7%, 88.9°/10, 0.8800, 1.44[illegible]; *n-hexyl*, 61, 80–1[illegible]/1, 0.8787, 1.4500; *n-heptyl*, 40, 101–2°/1, 0.8794, 1.4513; *n-octyl*, 30, 115–16°/2, 0.8794, 1.4528; *n-nonyl*, 27, 121–2°/2, 0.8800, 1.4550; *n-decyl*, 22, 134–5°/2, 0.8806, 1.4569. $EtPNEt_2Cl$ failed to react with S at 120°, but addn. of a little $AlCl_3$ produced a spontaneous [illegible] reaction [illegible] the temp. [illegible]

[illegible]

69, 112–13°/10, 1.0287, 1.4882; *Et*, 73, 115–16°/9, 1.0042, 1.4828; *Pr*, 65, 84–5°/1, 0.9892, 1.4801; *iso-Pr*, 67.5, 118.5–9.5°/9, 0.9858, 1.4781; *Bu*, 61, 88.9°/1, 0.9789, 1.4765; *iso-Bu*, 63, 132–[illegible]; *n-hexyl*, [illegible]

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ARBUZOV, B.A.

137-7.5 /2, 0.9578, 1.4789; n-octyl, 33.4, 144-4.5°/1, 0.9516, 1.4793; n-nonyl, 25[illegible], 151-2°/1, 0.9495, 1.47[illegible]; n-decyl, 19.2, 170-2°/1, 0.9446, 1.4800. EtP(NEt[illegible]) [illegible] d_{20} 0.92[illegible]0, n_D^{20} 1.4215, and $Et_2NH.HCl$. The at. refraction of N in these compds. was estd. at 2.09 units; 4.78 was used for the P atom in the thio derivs. G. M. Kosolapoff

2/2

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, E. A.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

G. M. Kosolapoff

ARBUZOV, B.A.; GRECHKIN, N.P.

Syntheses in the field of pyrene derivatives. Izv.Kazan.fil.AN SSSR Ser.khim.nauk no.2:31-37 '55. (MLRA 10:5)
(Pyrene)

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 8/26

Authors : Arbuzov, B. A., and Alimov, P. I.

Title : Products obtained from reaction of sodium salts of diethylthiophosphoric acid with alkoxydichlorophosphines

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 249 - 252, Mar-Apr 1955

Abstract : Data are presented regarding the derivation and certain properties of acid esters which appear to be anhydrides with two molecules of monothiophosphoric acid and one molecule of phosphorous acid. The derivation of esters of the general formula $ROP[OPS(OC_2H_5)_2]$ through the reaction of sodium salts of diethylthiophosphoric acid with alkoxydichlorophosphines is described. Table.

Institution : Acad. of Sc., USSR, Kazan Branch, The A. Ye. Arbuzov Chemistry Inst.

Submitted : January 16, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B.A.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 9/26

Authors : Arbuzov, B. A., and Rizpolozhenskiy, N. I.

Title : Esters of ethylphosphinic acids and some of their conversions. Part 5. Synthesis of dialkylphosphinic acid esters

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 253 - 259, Mar-Apr 1955

Abstract : Experiments were conducted to determine the applicability of a certain reaction method to the synthesis of dialkylphosphinic acid esters and particularly esters with mixed radicals. It is shown that acid esters of ethylphosphinic acid, like acid esters of phosphorous acid, form sodium salts when exposed to reaction with metallic sodium. It was established that the reaction between sodium salts of ethylphosphinic acid esters (ethylphosphinates) with alkyl halides results in the formation of ethyl-alkylphosphinic acid esters. The properties of the esters are analyzed. Six references: 4 USSR, 1 USA and 1 German (1897-1953). Table.

Institution : Acad. of Sc., USSR, Kazan Branch, The A. Ye. Arbuzov Chemistry Inst.

Submitted : January 16, 1954

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 962

Author: Arbuzov, B. A., and Samoylova, O. D.

Institution: Academy of Sciences USSR

Title: Action of Some Trialkoxy- and Dialkoxystibine Derivatives

Original Periodical: Izv. AN SSSR, 1955, No 3, 435-440

Abstract: The partial transesterification of $Sb(OC^2H5)3$ (I) with equimolar amounts of higher alcohols R'OH (not higher than $C_6H_{13}OH$) yields $Sb(OC_2H_5)_2OR'$ and $Sb(OC_2H_5)(OR')_2$. Transesterification also results in reaction with RCOOR' and glacial CH_3COOH. When dialkoxychlorostibines are reacted with higher alcohols an exchange of alkoxy groups takes place. All experiments were carried out in an Arbuzov distillation flask with the application of heat; 18 gms I and 4.5 gms $n\text{-}C_4H_9OH$ (at 110-115°) yield 4.9 gms $Sb(OC_2H_5)_2(n\text{-}OC_4H_9)$ (II), bp 109-110°/7 mm, n_D^{20} 1.4902, d_4^{20} 1.3990, 3.2 gms $Sb(OC_2H_5)(OC_4H_{9-n})_2$, bp 129-130/7 mm, n_D^{20} 1.4861, d_4^{20} 1.3051, and $Sb(OC_4H_{9-n})_3$ (III),

Card 1/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 962

Abstract: bp 140-141/7 mm. The following have also been prepared by a similar method (the ester, bp in ^{o} C/mm, n_D^{20}, and d_4^{20} are indicated): $Sb(OC_2H_5)_2(OC_5H_{11}\text{-i})$ 120-121/6, 1.4856, 1.3452; $Sb(OC_2H_5)(OC_5H_{11}\text{-iso})_2$ (IV), 136-137/3, 1.4815, 1.2630; $Sb(OC_2H_5)_2(OC_6H_{13}\text{-n})$, 151-152/4, 1.4840, 1.3313; $Sb(OC_2H_5)(OC_6H_{13}\text{-n})$, 171-172/4, 1.4743, 1.1982. When 4.9 gms II are heated to 150-160° for 20 minutes, 2.9 gms I and 1.6 gms III. A similar disproportionation is obtained with IV. Reaction of 4 gms I with 6 gms $CH_3COOC_4H_9\text{-n}$ (V) (one hour at 110-115°), 0.6 gms III are produced. Under the same conditions, 5 gms I and 8 gms $CH_3COOC_5H_{11}\text{-iso}$ give $Sb(OC_5H_{11}\text{-iso})$ in 82.4% yield, bp 156-157°/6 mm, d_4^{20} 1.1885, with the evolution of $CH_3COOC_2H_5$ (VI). Reaction of I with $C_6H_5COOC_6H_5$ (30 minutes at 140-150°) yields $Sb(OC_6H_5)_3$ in 77.4% yield, bp 238-242°/4 mm, mp 99-101°, and $C_6H_5COOC_2H_5$. Ten grams I are reacted with 2.3 gms glacial CH_3COOH and distilled at 30-40°/90 mm in alcohol. The residue is washed with $Sb(OC_2H_5)(OCOCH_3)$; mp 50-51°. At 100-110° decomposition takes place with the evolution of VI. Heating of 12 gms $Sb(OC_2H_5)_2Cl$ with 6.8 gms V at 110-115° gives $Sb(OC_4H_9\text{-n})Cl$ in 90% yield, bp 147-148°/10 mm, d_4^{20} 1.5066. A similar procedure can be used in the preparation of $Sb(OC_5H_{11}\text{-iso})Cl$ in

Card 2/3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.; SAMOYLOVA, O.D.

Action of halides on antimonous acid esters. Izv.AN SSSR.Otd.khim. nauk no.4:676-680 Jl-Ag '55. (MLRA 9:1)

1.Nauchno-issledovatel'skiy institut imeni A.M.Butlerova Kazanskogo gosudarstvennogo universiteta imeni V.I.Ul'yanova-Lenina.
(Antimonous acid)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Synthesis of phosphinic acid esters containing heterocyclic radicals Report no.5. Phosphinic acid esters with a dihydrocoumarin radical. Izv.AN SSSR.Otd.khim.nauk no4:681-688 Jl-Ag '55. (MLRA 9:1)

1.Khimicheskiy nauchno-issledovatel'skiy institut imeni A.M.Butlerova Kazanskogo universiteta imeni Ul'yanova-Lenina.
(Phosphinic acid) (Hydrocoumarin)

Translation available in/M -

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A., akademik (g. Kazan').

Kazan school of chemists. Khim. v shkole 10no.6:10-17N-D '55.
(Kazan--Chemistry--History) (MLRA 9:1)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

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Arbuzov, B. A.

[illegible] hydrogenated adduct gave [illegible] (II)

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ARBUZOV, B.A.; VINOGRADOVA, V.S.

Parachors of methyltrialkylsilanes. Izv.AN SSSR Otd.khim.nauk 86 no.6: 1031-1036 My '55. (MLRA 9:4)

1.Khimicheskiy institut imeni A.M.Butlerova, Kazanskogo gosudarstvennogo universiteta imeni V.I.Ul'yanova-Lenina.
(Silane) (Paracher)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARbuzov, B.A.

USSR/Chemistry - Synthesis of organophosphorous compounds

Card 1/1 Pub. 22 - 24/52

Authors : Arbuzov, B. A. Academician, and Yarmukhametova, D. Kh.

Title : Esters of dimethylamidophosphorous and dimethylamidothiophosphoric acids

Periodical : Dok. AN SSSR 101/4, 675-677, Apr 1, 1955

Abstract : Experimental material is presented on the synthesis of two new organophosphorous compounds - esters of dimethylamidophosphorous acid and esters of dimethylamidothiophosphoric acid (in abbrev. dimethylamido- and dimethyl-amidothiophosphates). The physico-chemical constants of the P-compounds are presented in tables. Experiments were conducted to determine the effect of methyl and ethyl iodides on dimethylamidophosphates and the results obtained are listed. The derivation of other phosphor-base by-products is briefly described. Two references: 1 German and 1 USA (1903 and 1950). Tables.

Institution : Acad. of Sc., USSR, Kazan' Branch, The A. E. Arbuzov Chem. Institute

Submitted : January 1, 1955

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A. (Kazan'); ISAYEVA, Z.G. (Kazan')

Isomeric conversions in the series of terpene oxides. Uch.zap.Kaz. un. 115 no.10:32-35 '55. (MLRA 10:5)

(Isomerism)
(Terpenes)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A. (Kazan'); VINOGRADOVA, V.S. (Kazan')

Keto-enol tautomerism of some phosphorus organic compounds. Uch.zap. Kaz.un. 115 no.10:36-37 '55. (MLRA 10:5)
(Phosphorus organic compounds)
(Tautomerism)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A. (Kazan'); ZOROASTROVA, V.M. (Kazan')

Esters of phosphinic acid with heterocyclic radicals. Uch.zap.Kaz.un. 115 no.10:37-40 '55. (MLRA 10:5)

(Phosphinic acid)
(Radicals (Chemistry))

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A. and VINOGRADOVA, V. S.

"Esters of Ketophosphonic Acids and Some of Their Properties" paper presented at Nn First Conference on Phosphorous Compounds, Kazan, 8-10 Dec 56

SO: B-3,084,841

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

"Paths of Development of Organic Derivatives of Phosphorus" paper presented at Nn First Conference on Phosphorous Compounds, Kazan, 8-10 Dec 56

SO: B-3,084,841

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ROBINZON, Ye.A.; ARBUSOV, B.A., akademik, otvetstvennyy redaktor; MOYESSEROV, K.G., redaktor izdatel'stva; MAKUNI, Ye.V., tekhnicheskiy redaktor.

[Petroleum of the Tatar A.S.S.R.] Nefti Tatarskoi ASSR. Moskva, Izd-vo Akademii nauk SSSR, 1956. 157 p. (Akademiia nauk SSSR. Kazanskii filial. Kazan. Trudy. Seriia khimicheskikh nauk, no.1)
(Tatar A.S.S.R.-- Petroleum) (MLRA 9:12)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Alkylamides of organic derivatives of

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

"Esters of Beta-Ketophosphonic Acids, Communication 1. Phosphoacetic Ester, Phosphonacetone, and Their Homologs," by B. A. Arbuzov and V. S. Vinogradova, Chemical Institute imeni A. M. Butlerov, Kazan State University imeni V. I. Lenin, Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, No 1, Jan 56, pp 54-63

This article outlines material indicating an analogy between carboxylic acids and beta-keto and beta-carbalkoxy derivatives of phosphonic acid esters. The phosphonacetic and methyl phosphonacetic esters do not contain noticeable amounts of the enol form. Both phosphonacetone and methyl phosphonacetone contain small amounts of the enol form, as determined bromine titration. Considerable enolization was found to take place in an alkaline medium. Esters of beta-ketophosphonic acids [illegible] properties differing from those as prepared with sodium diethylphosphate.

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Sum.1305

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

АРБУЗОВ, Б.А.

USSR/Chemical Technology - Chemical Products and Their Applications -- Pesticides I-7

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8838

Author : Arbuzov, B.A.
Inst :
Title : Applications of Organophosphorus Compounds.

Orig Pub : Khim. nauka i prom-st, 1956, 1, No 1, 109.

Abstract : A short communication on the conference on organophosphorus compounds (Kazan, December 1955).

Card 1/1

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV B. A.

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 956

Author: Arbuzov, B. A., and Grechkin, N. P.

Institution: Academy of Sciences USSR

Title: On the Structure of Phosphorus-Containing Organolead Compounds

Original Periodical: Izv. AN SSSR, Section on Chemical Sciences, 1956, No 4, 440-442

Abstract: The formation of $RP(O)(OR)(OSnR_3)$ (I) from the reaction of $(RO_3)P$ (II) and R_3SnI (III) is confirmed (L. Malatesta, Gazz. Chim. Ital., 1950, 80, 527), and not that of $R_3SnP(O)(OR)_2$ (Dokl. AN SSSR, 1947, Vol 57, 353). II undergoes the Arbuzov rearrangement, and forms $RP(O)(OR)_2$ (IV), which with III yields I and RI. One mole $(C_2H_5)_2SnI_2$ (V) reacts with 2 moles IV ($R = C_2H_5$) at 125° to give C_2H_5I (yield 72%) and $[C_6H_5P(O)(OC_2H_5)O]_2Sn(C_2H_5)_2$ (VII) (yield 78%, mp 292-294°); the latter compound can also be prepared from $C_6H_5P(OC_2H_5)_2$ and V. The hydrolysis of VII with concentrated HCl yields $C_6H_5(C_2H_5)POH$. When 2 moles of $(C_6H_5)_2POC_2H_5$ (VIII) are

Card 1/2

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

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

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 956

Abstract: heated to 210° with one mole $(C_2H_5)_2SnCl_2$, $[(C_6H_5)_2P(O)O]_2Sn(C_2H_5)_2$ (IX) is obtained (mp 346-349°) together with $(C_6H_5)_3PO$. The formation of IX is apparently related to an intramolecular oxidation reaction of VIII; this, however, is unestablished. The hydrolysis of IX yields $(C_6H_5)_2POH$; the reaction is quantitative.

Card 2/2

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A.

2

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

USSR/ Chemistry

Card 1/1 Pub. 22 - 24/54

Authors : Arbuzov, B. A., Academician, and Vinogradova, V. S.

Title : Beta-ketophosphinic acid ester investigated by the bromine titration method

Periodical : Dok. AN SSSR 106/2, 263-266, Jan 11, 1956

Abstract : Numerous beta-phosphinic acid esters were synthesized and investigated to determine the existence of anol forms of these esters and to establish the effect of the carboxyl and phosphonium groups on the formation of enol forms. It was found that the results obtained by the application of the bromine titration method do not allow the problem concerning the existence of enol forms or their number in esters of various beta-phosphinic acids to be solved. Further study of these acids by physico-chemical methods is recommended. Eight references: 6 USSR and 2 Germ. (1911-1955). Tables.

Institution : Scient. Res. Inst. im. A. M. Butlerov at the Kazan University im. V. I. Lenin

Submitted : September 24, 1955

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B. A.

Ultraviolet absorption spectra of esters of α-keto phosphonic acids. B. A. Arbuzov and V. S. Vinogradova (V. I. Ul'yanov-Lenin State Univ., Kazan). *Doklady Akad. Nauk S.S.S.R.* 106, 465-8(1956).—Reproductions of ultraviolet absorption spectra are given for solns. of several esters of keto phosphonic acids and of their alkenyl phosphate analogs, in ROH and in ROH-RONa. $(EtO)_2P(O)CH_2Ac$ in MeOH has a spectrum similar to that of $AcCH_2CO_2Et$ in H_2O, indicating very little enol form; in MeONa-MeOH soln. there is a max. at 2400 A., indicative of considerable concn. of enolate ions; $(EtO)_2P(O)CH_2COEt$ gives a similar spectrum which is similar to that of $BuSO_2CH_2Ac$ (cf. Fehnel and Carmack, *C.A.* 43, 4215*i*). MeOH, hexane, or H_2O as solvents give substantially the same spectrum of $(EtO)_2P(O)CH_2Ac$ (I). The spectrum of $(EtO)_2P(O)OCMe:CH_2$, a possible contaminant of the above, shows a max. 2500 A., in the location in which I has a min.; MeONa merely enhances the 2500 band. The above results were obtained from I prepd. from $(EtO)_3P$ and XCH_2Ac. I prepd. from $(EtO)_2PONa$ and $BrCH_2Ac$ has a smoother absorption curve and lacks the max. at 2800 A.; in MeONa this specimen also has the enolate band at 2400 A. $(EtO)_2P(O)CMe_2Ac$, prepd. from $(EtO)_2PONa$, has less than 2% titer with Br_2, and its absorption spectrum has max. at 2200 and 2300 A. unchanged by MeONa. $(EtO)_2P(O)CH_2COPh$, prepd. from $(EtO)_3P$, gives $FeCl_3$ color test and contains 9% unsatd. material; its spectrum in MeOH duplicates that of

(over)

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Arbuzov, B.A.

AcPh; apparently the 2450-A. max. is due to keto form and 2850-A. to enol. Hexane does not alter the shape of the curve; in aq. soln. the 2850-A. band weakens; in MeONa-MeOH the 2450-A. band weakens and 2800-3100-A rises sharply, apparently owing to enolization or chelation. $(EtO)_2P(O)CMe_2COPh$ has a sharp band at 2450 A., and no max. at 2850 A.; MeONa does not change the spectrum. An analogy is drawn between the ketophosphonates and malonic ester.

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

Arbuzov, B.A.

Addition of phenol to butadiene [illegible]
I. A. Shapshinskaya [illegible]
Chem. 110 [illegible]

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

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"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBIZOV B A

Product of reaction of [illegible]

[illegible] had a rather shallow appearance of the bands, unlike the spectrum of the product (II) prepd. from $(BtO)_3P$ and $BrCH_2Ac$, which had steep bands and absorption max. at 2800 A., characteristic of the CO group. Further examn. of I showed that it failed to react with typical CO reagents such as 2,4-dinitrophenylhydrazine or semicarbazide. These results indicated that I was formed by reaction of the sodiophosphite not with Br but with the CO group with intermediate formation of $BrCH_2CMe(ONa)P$-

$(OH)OEt_2$, which then [illegible]

[illegible] added [illegible] g.

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Arbuz[illegible], B. A.; Vi[illegible]

KOH in 150 ml abs. EtOH refluxed [illegible] yielding [illegible] after thorough fractionating [illegible] 1313, d_4^{20} 1.1187. The spectra of 2 specimens of I were quite similar. The Raman spectra were identical and lacked the CO band, while this was clear at 1712 cm.$^{-1}$ in specimen of II.

G. M. Kosolapoff

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B.A.; ISKHAKOVA, E.Kh.

Diene synthesis of anthracene with acrolein and acrylic acid nitrile. Uch.zap.Kaz.un. 116 no.5:113-116 '56. (MLRA 10:4)

1. Kafedra organicheskoy khimii.
(Acrolein) (Chemistry, Organic--Synthesis)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"

"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3

ARBUZOV, B. A., University of Kazan, USSR

"A Study of Regrouping According to A. E. Arbuzov, Using Physiochemistry Methods," a paper submitted at the 16th International Congress of Pure and Applied Chemistry, Paris, 18-24 1957.

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000101920005-3"