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SHAMSHURA, T., agronom

Liming doubles the force of fertilizers. Zemledelie 27 no.6: 66-68 Je '65. (MIRA 18:9)

1. Kolkhoz "Prizyv" Vitebskogo rayona, Vitebskoy oblasti.

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SHAMSHURIN, A.A., kand.khim.nauk

New inhibitor in wine making. Priroda 53 no.6:115-116 '64. (MIRA 17:6)

1. Institut khimii AN Moldavskoy SSR, Kishinev.

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LAGUREV, S.P., SHAMSHURIN, A.A.

"On fixation of Hydrogen Chloride on Methylphenylethylene," Zhur, Obshch. Khim., 9, No. 3, 1939. Uzbek State University, Received 17 March 1938.

Report U-1517, 22 Oct 1951

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Fixation of hydrogen chloride in methylphenylethylene

S. P. Lagerev and A. A. Shamshurin. *J. Gen. Chem. (U. S. S. R.)* 9, [illegible] (1939). According to the Wagner-Zaitsev law, substituted ethylene hydrocarbons react with halogen halids with the fixation of the halogen at the unsatd. C bearing the Me or Ph group. It was of interest to investigate this reaction with olefins of the type PhCH:CHMe (I). PhCH(OH)Et (II), b_{15} 108-10°, (from BrH and EtMgBr) when treated with dry HCl at room temp. for 12 hrs. yielded *PhCHClCH₂Me* (III), b_{15} 81°. Refluxing III with excess of alc. KOH for 5-6 hrs., dilg. the distn. residue with H_2O and extg. with Et_2O gave nearly 100% I, b_{15} 69-70°, b. 172-4°, d_4^{20} 0.913. Oxidation with $KMnO_4$ in H_2O formed BzOH and AcOH and the reaction with Br_2 gave the *di-Br deriv.*, white needles, m. 67°. I was also obtained from PhCH₂CH(OH)Me, b_{15} 110°, b. 216° (from PhCH₂MgCl and AcH) by treating it with HCl and decomps. the resulting *PhCH₂CHClMe*, b_{15} 91-5°, with KOH as above. I, treated with HCl, gave II, acetate of II, b. 226-7°. The addn. of the neg. Cl ion takes place at the C atom polarized by the action of Ph with a greater neg. charge than that of the Me group.

Chas. Blanc

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SHAMSHURIN, A. A.

600

1. SHAMSHURIN, A. A.

2. USSR (600)

"A Few Words on Obtaining Methyl Chloride by the Reaction between Dimethylsulfate and Aluminum Chloride", Zhr. Obshch. Khim. 9, No. 23, 1939. Lab. of Organic Chemistry, Samarkand Medical Inst. Received 23 June 1939.

9. [redacted] Report U-1626, 11 Jan. 1952.

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Ca

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The reaction between triphenylbenzylphosphonium bromide and metallic sodium. I. N. Pafent'ev and A. A. Shamshurin. *J. Gen. Chem.* (U. S. S. R.) 9, 803-7(1939).—Dry $Ph_3(PhCH_2)PBr$ (I), obtained in almost quant. yield from Ph_3P and $PhCH_2Br$ in toluene, was warmed (8.19 g.) with 0.43 g. Na powder in 250 ml. ether for 2 days while stirring, after which time moist air was introduced into the reaction mixt. for 4 hrs. while stirring. The ether soln. was sucked off, the residue was washed 3 times with fresh ether and then filtered off. The solid mixt. was treated with alc. whereby 1.920 g. I was extd. The residue consisted of 0.6721 g. NaBr. The ether soln. contained 2.022 g. Ph_3PO, m. 153-4°, and toluene. These results indicate that Ph_3P CHPh is the primary reaction product from I and Na. G. B.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

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Preparation of methyl chloride from dimethyl sulfate and aluminum chloride. A. A. Shamshurin. *J. Gen. Chem.* (U. S. S. R.) 9, 2207-8(1939).—MeCl can be quickly prepd. in 100% yield by adding dropwise Me_2SO_4 to anhyd. $AlCl_3$ at room temp. Chas. Blanc

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PROCESSES AND PROPERTIES INDEX

A new method for the synthesis of the homologs of benzene through alkyl sulfates A. A. Shamshurin *Trudy Uzbekskogo Gosudarst. Univ., Sbornik Rabot Khim* 15, 26-32(in English, 32)(1939).—All expts. were carried out as follows: 0.4 mol. of $AlCl_3$ is placed in a 500 cc flask in an ice bath provided with an elec. mixer, reflux condenser and drop funnel, and an excess of the hydrocarbon is added. Me_2SO_4 is added slowly (3-4 hrs.) so that no bubbles of MeCl escape during the immersion of the gas-inlet tube into water. Evolution of HCl begins almost immediately. Cooling with snow is continued on the following day. After this the reaction is carried out at room temp. (15-20°) and, finally, with heating with warm water at up to 35-45° during the last 8-10 hrs. The reaction is completed after 48-50 hrs. The contents of the flask are treated with acidified water with a large amt. of ice. The brown layer sepg. from the aq. layer is sepd., washed with water, twice with 10% NH_4OH and again with water and dried with $CaCl_2$. For the decompn. of the residue of alkyl sulfate the mixt. is boiled under a reflux condenser over metallic Na or (better) Na alcoholate and the hydrocarbons fractionally distd. The products of the condensation are identified by the detn. of their consts. and their chem. derivs. For the condensation of benzene with Me_2SO_4, 42 g. (1/3 mol.), freshly prepd., was added during 3.5 hrs. to 120 g. benzene and 84 g. (1/3 mol.) $AlCl_3$. After the above treatment the yields of the products were: 14 g. (20.2%) of the toluene fraction (considering both Me groups) and 9 g. (25.7%) of the polymethylbenzene fraction (recalcd. to dimethylbenzene). Fractional distn. of the products produced toluene, b. 109-10°, d_{16} 0.8698, and *m*-xylene, b. 137-8°, d_4^{20} 0.8636, which was isolated from the xylene fraction. Nitration of the toluene fraction with fuming HNO_3 and H_2SO_4 produced the solid 2,4-dinitrotoluene, pale-yellow needles, m. 70-70.5° (from aq. alc.). Oxidation of the sample with alk. $KMnO_4$ produced BzOH, m. 121°. Oxidation of *m*-xylene with 5% HNO_3 by heating the mixt. in a sealed tube for 16 hrs. at 150-160° produced isophthalic acid, m. 348° (from alc.). Condensation expts. on toluene with Me_2SO_4 produced 21.5 g. (30%) of a xylene fraction, b. 134-9°, d. 0.8681, and 14 g. (35%) of polymethylbenzenes (recalcd. to trimethylbenzene). Fractional distn. produced *m*-xylene, b. 137-8°, d_4^{20} 0.8638, and trimethylbenzene (mesitylene), b. 160-3°, d_4^{20} 0.8558, mol. wt. 121. Oxidation of *m*-xylene with dil. HNO_3 produced isophthalic acid. Nitration according to Beilstein and Lehmann produced 2,4,6-trinitro-*m*-xylene, m. 182° (from alc.-benzene). Nitration of trimethylbenzene with glacial AcOH produced dinitromesitylene (I), m. 86°. Condensation expts. on *m*-xylene with Me_2SO_4 produced 12 g. of a 155-80° fraction whose further fractionation showed that it consisted of trimethylbenzenes (78%), mainly mesitylene. The yield

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was 9.4 g. (52%) (calcd. to Me_2SO_4). The fraction b. 162-3.5° was mesitylene, d_4^{20} 0.8559, mol. wt. in benzene 122. Nitration in glacial AcOH produced I. The yield of the polymethylbenzene fraction was 7.5 g. S. concludes that (1) toluene and xylene can be alkylated by using Me_2SO_4 under conditions of the Friedel and Crafts reaction, (2) $AlCl_3$ takes part in these reactions not only as a condensation agent, but also as a source of halogen for the formation of alkyl halide, (3) the temp. must be kept at not over 25° during the initial 40 hrs. of the reaction and cooling of the mixt. is necessary at the beginning of the reaction; (4) the order of the addn. of $AlCl_3$ and Me_2SO_4 is of no importance; (5) the effect of Me_2SO_4 on $AlCl_3$ can be used as a source for the production of MeCl (for demonstration purposes) owing to the simplicity, easiness and rapidity of the reaction. W. R. Henn

Ten references.

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PROCESSES AND PROPERTIES INDEX

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Rearrangement of ethers of 7-hydroxy-4-methylcoumarin. Synthesis of tetrahydrotubanol. A. A. Shamshurin. *Trudy Uzbekskogo Gosudarst. Univ., Sbornik Rabot Khim.* 15, 33-9(1939).—Expts. with the iso-Am ether of 7-hydroxy-4-methylcoumarin (I) proved the possibility of rearrangements according to Fries of I with satd. alkyls. Tetrahydrotubanol (II) (2-isoamylresorcinol) can be obtained by splitting the lactone ring of the 7-hydroxy-8-isoamyl-4-methylcoumarin (III) by the action of bases. Very small yields are obtained. The initial I was prepd. by combining resorcinol and acetoacetic ester with H_2SO_4. Resorcinol (50 g.) and 62.2 g. $AcCH_2CO_2Et$ were mixed in a 1-l. beaker to a uniform paste and 450 ml. 75% H_2SO_4 was added to it. The paste dissolved slowly with evolution of heat, producing a dark-red soln. which was kept for 30 min. at 80-5° in a water bath. The soln. was cooled to room temp. and added to 2 l. of water with ice. The light-yellow ppt. was carefully washed free from acid with cold water and dried at 100°. The yield was 77 g. For the prepn. of the isoamyl ether of I, $C_6H_4O_2(OC_5H_{11})$, seal in a tube 14 g. (0.07 mol.) of I and 1.08 g. (0.07 mol.) of metallic Na in 150 ml. of abs. alc. (dried with Mg according to Bjerrum) and 15 g. (0.1 mol.) of iso-AmBr, b. 117-18°, and heat for 15 hrs. in a water bath. Transfer the contents of the tube to water, filter the ppt., treat it with cold 5% base for the extn. of the untreated I. The needles recrystd. from 75% alc. m. 54-5°, are sol. in ether, acetone, $CHCl_3$ and benzene and slightly sol. in petr. ether and (iso-Am)$_2$O. The ether is not hydrolyzed in 20% KOH when heated for 1 hr. in a water bath. Approx. 1 g. of I was dissolved in 20 ml. of EtOH, 1 ml. of concd. H_2SO_4 added and the mixt. heated for 5 hrs. in a water bath. After neutralization with soda soln. and addn. of acid a ppt. was formed which m. 183-3° after crystn. from alc. III was obtained by the rearrangement of the iso-Am ether of I with $AlCl_3$ under the conditions of the Fries reaction. The mixt. obtained by grinding 12 g. of the ether and 12 g. of anhyd. $AlCl_3$ was placed in a 200-ml. pyrex beaker supplied with a long glass tube provided with a $CaCl_2$ tube and heated slowly to 140° in an oil bath for 1 hr. The dark brown melt (solidifies rapidly on cooling) was treated as usual with weak H_2SO_4 and ice, the ppt. was washed carefully from acid on a Büchner funnel and crystd. from 75% alc., producing 3.5 g. of pale yellow needles, m. 164°, sol. in bases. No color was produced with alc. $FeCl_3$. An ether soln. of CH_2N_2 (obtained from 4 ml. of $MeN(NO)CO_2Et$) was added to 0.6 g. of 7-hydroxy-8-isoamylcoumarin in 5.5 ml. of MeOH. The soln. was left standing overnight, the solvent distd. off in a water bath and the remaining oil crystd. Colorless needles (0.46 g.), m. 112°, were obtained after recrystn. from ligroin (b. 70-80°). III (5 g.) was heated for 2 hrs. in a water bath with 8 g. of NaOH in 20 ml. of water. After the splitting the mixt. was cooled, acidified with H_2SO_4 and extd. 3 times with ether. The combined ether exts. were washed with HCO_3^- soln. and with water and dried

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over hot Na_2SO_4. The ether was distd. off and the residue distd. *in vacuo* at 150-8° (20 mm.) and recrystd. from ligroin. The yield of II was 0.9 g. Condensation of II with $AcCH_2CO_2Et$ in III was carried out in the presence of H_2SO_4, according to Pechmann: 3 ml. of concd. H_2SO_4 was added to 1.5 g. of II mixed with 1.5 g. of freshly prepd. $AcCH_2CO_2Et$ and heated in a sand bath to 80°. The temp. was then raised to 130° and the mixt. kept at this temp. for several min. The dark-brown soln. was carefully poured into ice water. The ether ext. produced a residue (after distg. off the ether) which after recrystn. from MeOH produced 0.4 g. of III, m. 163-4°. Nine references.

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CA

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Synthesis of methylnonylbenzylcarbinol. A. A. Shamshurin and R. A. Ibadulin. *Trudy Uzbekskogo Gosudarst. Univ., Sbornik Rabot Khim.* 15, 40-2(1939). -In a 1-l. flask provided with a reflux condenser, drop funnel and a stirrer with a Hg seal place 8 g. (1/3 mol.) of dry Mg shavings and 200 ml. of dry ether, add drop by drop from the funnel with mixing an ether soln. (1:1) of dried (with $CaCl_2$), freshly prepd. $PhCH_2Cl$, m. 176-9°, equiv. to 43 g. (1/3 mol.). The reaction is started by adding a crystal of I and by immersing the flask in warm water, which is later cooled with ice. Let the soln. stand overnight with const. mixing, heat in a water bath for 1 hr., cool the product of the reaction in an ice bath, add an ether soln. (2:1) of freshly distd. (*in vacuo*) Me nonyl ketone, b_{18} 107-8°, equiv. to 57 g. (1/3 mol.) and keep in a water bath for 1 hr. with const. mixing. After cooling decomp. the org. Mg complex with ice and 10% H_2SO_4, sep. the upper ether layer, ext. the aq. layer 3 times with ether, combine the exts. and wash several times with soda and water. Dry with Na_2SO_4, distil off the ether, freeze out the bibenzyl from the settled oil, filter the bibenzyl crystals in a Büchner funnel as rapidly as possible and distil the filtrate *in vacuo*. The bibenzyl was recrystd. and identified (m. 52°). Since the product was contaminated with traces of ketone (odor of oranges) the mixt. was fractionally distd. twice *in vacuo*. The yield of the main portion, b_{18} 179°, was 58 g. (68%). The methylnonylbenzylcarbinol, $C_{19}H_{32}O$, is an oily, nearly colorless liquid with a mushroom odor, d_4^{20} 0.9273, n_D^{20} 1.496, mol. wt. in freezing benzene 259.4, HO no. (Zerevitinov) 6.03% (calcd. 6.38%). Two references.

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Ca

Esters of pyrocarbonic acid. Butyl pyrocarbonate. L. N. Parfent'ev and A. A. Shainshürin. *Trudy Uzbekskogo Gosudarst. Univ., Sbornik Rabot Khim.* 15, 67-74 (1939).—The object of the expts. was to verify and to develop further the method of Boehm and Mehla (*C. A.* 32, 9043[1]) for the prepn. of pyrocarbonic esters with other radicals and to extend their use as carbalkoxylating agents for other compds. By treating $ClCO_2Bu$ in the presence of emetine with a 10% KOH soln. P. and S. obtained and identified a *new* Bu ester of pyrocarbonic acid, $(BuO_2C)_2O$, b_4 115-16°, d_4 0.9817, and tried it out as a carbobutoxylating agent in regard to amines and phenols. In this manner P. and S. prepd. Bu *p*-ethoxyphenylcarbamate (4-carbobutoxyethoxyphenylurethan), $p\text{-}EtOC_6H_4NHCO_2Bu$, colorless needles, m. 234-5° (slight decompn.); *o*-EtO isomer, long colorless needles, m. 204.5-205°, sol. in $CHCl_3$ and acetone, practically insol. in AcOEt and CCl_4; Bu phenylhydrazinecarboxylate (carbobutoxyphenylhydrazine), $Ph(NH)_2CO_2Bu$, pearly scales, m. 234-5°, insol. in CCl_4, $CHCl_3$ and petr. ether, sol. in acetone; Et ester (carbethoxyphenylhydrazine), m. 81°, (nearly quant. yield); Et *p*-ethoxyphenylcarbamate (4-carbethoxyethoxyphenylurethan), $p\text{-}EtOC_6H_4NHCO_2Et$, snow-white needles, m. 92.5°, caused no depression of m. p. when mixed with a prepn. obtained by treating *p*-phenetidine with $ClCO_2Et$; 1-naphthylurethan, $C_{10}H_7NHCO_2Et$, needles, m. 79-80° (nearly quant. yield); 2-naphthylurethan, needles, m. 71-2°; Et 1-naphthyl carbonate, plates, m. 32°. The general equation for all these reactions of carbethoxylation with pyrocarbonic esters is $RNH_2 + (ROCO)_2O \rightarrow RNHCO_2CO_2R + ROH \rightarrow RNHCO_2R + CO_2$. An excellent yield was obtained in the prepn. of quinine Et carbonate (euquinine), m. 94-5°, according to the equation $C_{20}H_{24}N_2O(OH) + (EtOCO)_2O \rightarrow C_{20}H_{24}N_2O(OCO_2Et) + EtOH + CO_2$. $O(CO_2Et)_2$ (2 g.) reacted with $SOCl_2$ (2 g.) in a 50-ml. flask equipped with a reflux condenser for 1 hr. in a water bath according to the reaction $(EtOCO)_2O + SOCl_2 \rightarrow 2EtOCOCl + SO_2$. The reflux condenser was equipped with a $CaCl_2$ tube to prevent any access of moisture into the reaction flask. After all SO_2 was evolved the residue was distd. from a small Würtz flask under atm. pressure. The main fraction (1.9 g.) b. 91-9° and was identified as EtOCOCl. The reaction characterizes the pyrocarbonic esters as peculiar anhydrides which possess some analogy with ordinary anhydrides. This splitting mechanism confirms the structure of the mol. of pyrocarbonic ester. Attempts to replace emetine with such bases as urotropine for the prepn. of pyrocarbonic esters were unsuccessful. The corresponding S analog, $(EtSCO)_2O$, was not produced under the same conditions from the treatment of emetine (in the presence of base) with EtSCOCl, which was obtained from the reaction of phosgene with EtSH. 11 references.

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The selective ability of the ethylene bond, depending on the charge of the radicals. A. A. Shamshurin. *Trudy Uzbekskogo Gosudarst. Univ., Sbornik Rabot Khim.* 15, 75-85 in English, 86 (1939).—S. showed that it is possible to extend the Wagner-Saytzeff rule (*Ann.* 179, 313 (1875)) in case of the reaction between PhCH·CHMe and HCl and proved that the halogen is attached to the double-bond C atom which is bound to the Ph radical. An attempt is made to explain qualitatively the effect of the orientation of the ethylene bond on the addn. of HX from the point of view of the electronic theory. For the addn. of the HCl elements to PhCH·CHMe the following rule can be formulated: the halogen atom is attached to that double-bond C atom which is bound to the most neg. radical, i. e., to Ph. In the splitting off of the halogen atom from alkyl halides the halogen atom removes a H atom from that C atom which is bound to the most neg. radical; the splitting off of the HCl elements from PhCH,CHClMe produces PhCH·CHMe. The splitting off of HCl from PhCHClEt also produces PhCH·CHMe. The method used for the expts. was as follows. 3-Phenyl-1-propanol and 1-phenyl-2-propanol were synthesized by the Grignard reaction for the production of (1- and 2-chloropropyl)-benzene. Both alcs. were transformed into the chlorides from which the HCl elements were removed by twice the theoretical amt. of alc. KOH. The obtained hydrocarbons were analyzed by the combustion method, oxidized with $KMnO_4$ and their structure detd. Then dibromides were obtained. This was followed by another addn. of the HCl elements which were again split off until the mechanism of the reaction was detd. (1-Chloropropyl)-benzene is a colorless liquid, b_4 77-8°, b_{10} 83°. The acetate, PhCH(OAc)Et, b_7 227-8°. 2-Chloropropyl benzene, b_9 94-5°. 27 references. W. R. Henn

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Veratral-6-arsonic acid. A. A. Shamshurin. *J. Gen. Chem.* (U. S. S. R.) 11, 647-9(1941).—See *C. A.* 35, 5869[9]. C. L. B.

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3RD AND 4TH ORDERS

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Some ethers of 7-hydroxy-4-methylcoumarin A. A. Shamshurin and R. A. Ibadulin. *Trudy Uzbekskogo Gosudarst. Univ.* [N. S.], No. 25, Khim., No. 1, 1-8 (1941). The prepn. of ethers of *7-hydroxy-4-methylcoumarin* (I) is of interest, practically because of the sweet taste of some of them, and theoretically because of the possibility of prepn. of 2-substituted resorcinols by rearrangement and hydrolysis. The *iso-Am ether* of I, prepd. by heating 15 g. I, 20 g. iso-AmBr and 1.8 g. Na in 150 cc. abs. EtOH in a sealed tube for 16 hrs. on a water bath, m. 54° (from 75% EtOH). *Hexyl ether*, prepd. by heating 75 cc. abs. EtOH, 1.9 g. Na, treated with 10 g. I and 12 g. hexyl iodide, for 12 hrs. on a water bath, m. 134-5° (from 75% EtOH). *Benzyl ether*, prepd. by heating 15 g. I, 11 g. BzCl and 2 g. Na in 100 cc. dry EtOH for 4 hrs. on a water bath, m. 112.5° (from 50% EtOH). I *cinnamate*, prepd. by heating 13 g. I with 15 g. PhCH:CHCOCl in 35 cc. dry pyridine for 2 hrs. on a water bath, m. 146-7° (from benzene). *Chloroacetate*, prepd. by heating (after initial cooling) of 20 g. I in 100 cc. dry pyridine treated with 20 g. $ClCH_2COCl$, m. 232° (from PhMe). *β-Bromoallyl ether* of I, from 33 g. I, 1.7 g. Na in 200 cc. dry EtOH and 138 g. $MeCHBrCH_2Br$, heated on a steam bath for several hours, m. 109° (from EtOH). *Benzenesulfonate* of I from 15 g. I and 15 g. $PhSO_2Cl$ treated with 2 g. Na in 100 cc. abs. EtOH, followed by heating on a water bath, m. 112-13° (from EtOH). *p-Toluenesulfonate*, prepd. as above with 15.5 g. p-$MeC_6H_4SO_2Cl$, m. 107-8° (from EtOH). G. M. Kosolapoff

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Syntheses of 2-substituted resorcinols. 2-Butyryl- and 2-butylresorcinol. A. A. Shamshurin and K. V. Arkhangelskaya. *Trudy Uzbekskogo Gosudarst. Univ.* (N. S.), No. 25, Khim. No. 1, 9–17(1941).—The authors prepd. *2-butyryl-* (I) and *2-butylresorcinol* (II), because of the biol. interest of ring-substituted resorcinols. *4-Methyl-7-hydroxycoumarin* (12 g.) in 25 cc. dry pyridine was heated for 1 hr. on a water bath with 18 g. PrCOCl to give 50% of the *butyrate*, m. 92.5° (from EtOH). This ester (13 g.) ground with 33 g. $AlCl_3$ and heated to 90°, then to 160–5° for 1 hr., yields *4-methyl-7-hydroxy-8-butyrylcoumarin* (III), m. 145° (from EtOH). *Me ether of* III, from 1 g. III treated with 4 cc. 20% NaOH and 2 cc. Me_2SO_4, m. 127.5° (from Et_2O). III *acetate*, from 1 g. III, 4 cc. Ac_2O and 3–4 drops H_2SO_4 heated for 0.25 hr. on a water bath, m. 141–2° (from aq. EtOH). *Benzoate*, from 0.1 g. III in 20 cc. dry pyridine and 0.3 g. $BzCl$, briefly heated on a water bath, then let stand, m. 138–9° (from EtOH). III (0.3 g.) in 5 cc. AcOH treated with 0.15 g. $PhNHNH_2$ in 3 cc. AcOH yields the *phenylhydrazone of* III, m. 220° (decompn.). On boiling 10.6 g. III with 160 cc. *N* NaOH for 0.25 hr., there is obtained 50% of *2-butyrylresorcinol* (I), m. 112.5° (from H_2O or ligroin). I (1 g.) heated with 3 cc. 30% NaOH and 2 cc. Me_2SO_4 1.5 hrs. on a water bath yields *1,3-dimethoxy-2-butylbenzene*, b. 287–90°. By Clemmensen reduction of 1 g. I with 50 g. amalgamated Zn, 15 cc. concd. HCl, 1.5 cc. AcOH and 3.5 cc. H_2O, heated under a reflux for 5 hrs. there is obtained *2-butylresorcinol* (II), m. 74–5° (from ligroin). *Dibenzoate of* II, m. 117–18° (from aq. EtOH). *Propyl(2,6-dimethoxyphenyl)carbinol*, prepd. by treatment of 0.8 g. $(MeO)_2C_6H_3COPr$ in 8 cc. abs. EtOH with 0.8 g. Na, followed by heating on water bath, m. 45–6° (from MeOH).

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PROCESSES AND PROPERTIES INDEX

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Veratral-6-arsonic acid. A. A. Shamshurin. *Trudy Uzbekskogo Gosudarst. Univ.* [N. S.], No. 25, Khim. No. 1, 19-22(1941).—Veratral was prepd. in 84% yield by methylation of com. vanillin by Me_2SO_4. To 100 cc. HNO_3 (d. 1.42) at 5° there was added slowly 10 g. veratral and the soln. let stand in the dark for 3 hrs. at 0° and treated with H_2O; *6-nitroveratral*, m. 133-4° (from EtOH), resulted in 66% yield; 10 g. added in hot water to 100 g. Fe sulfate in 500 cc. boiling H_2O, followed by slow addn. of 100 cc. concd. NH_4OH (to alky.) and boiling for 5-10 min. yields, on filtration, cooling and benzene extn., *6-amino-veratral*, m. 83-4° (from benzene-ligroin) (7.7 g.). The NH_2 compd. (10 g.) in 9.5 cc. H_2O and 9.5 cc. concd. HCl was diazotized at 0° by 2 g. $NaNO_2$ in 20 cc. H_2O; the diazonium soln. was treated with Na arsenite, prepd from 3.3 g. As_2O_3, 4.4 g. NaOH and 45 cc. H_2O; to the mixt. there was added 2 cc. $Cu(OAc)_2$ soln., causing N evolution which was completed by 0.5 hr. heating on the water bath. After filtration and acidification by HCl, there was obtained 46.2% *veratral-6-arsonic acid*, m. about 300° (decompn.) (from dil. HCl); *semicarbazone* ($2H_2O$), m. 256° (sealed tube). The acid is stable to boiling with 15% HCl or 30% NaOH, only 25% and 37%, resp., being decompd. after 1 hr. treatment. By oxidation with $KMnO_4$ in the presence of $MgSO_4$ the acid yields *3,4-dimethoxy-6-arsonobenzoic acid*, $(MeO)_2C_6H_2(CO_2H)AsO_3H_2$, m. over 300° (from EtOH); Ba salt, needles (from H_2O).

G. M. Kosolapoff

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PROCESSES AND PROPERTIES INDEX

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The preparation of piperonylideneacetic acid. A. A. Shamshurin and M. Karieva. *Trudy Uzbekskogo Gosudarst. Univ.* [N. S.], No. 23, Khim. No. 1, 23-5(1941). The authors found that the known methods of prepg. piperonylideneacetic acid are not very satisfactory and carried out the prepn. analogously to the Friedmann-Mai prepn. of cinnamylideneacetic acid (C. A. 26, 1271). Piperonal (22.5 g.) and 15 g. pyruvic acid, cooled with ice, are added to 7.5 g. pure NaOH in 100 cc. 50% EtOH, with stirring, in the course of 1 hr., followed by stirring for 1.5 hrs., filtration and washing with EtOH, to yield 67% of *Na piperonylidenepyruvate*, $CH_2O_2C_6H_3CH{:}CHCOCO_2Na$ (I). I (10 g.) in 200 cc. H_2O, cooled with ice, is treated during 15 min. with 6 cc. 30% H_2O_2 added from a buret. After 1.5 hrs. the CO_2 evolution ceases, the ppt. is filtered and acidified by 2 N H_2SO_4. The pptd. yellow acid is obtained in 88% yield, m. 232° (from MePh), which agrees with the known value for *piperonylideneacetic acid*, $CH_2O_2C_6H_3CH{:}CHCO_2H$.

G. M. Kosolapoff

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1ST AND 2ND ORDERS

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Action of pyrocarbonates in Grignard reagents. A. A. Shamshurin. *J. Gen. Chem.* (U. S. S. R.) 13, 569-72 (1943) (English summary).—PhMgBr (from 35 g. PhBr) was treated with cooling and stirring with 9 g. $O(CO_2Et)_2$ in abs. Et_2O; after standing overnight, the mixt. was decomposed with ice and NH_4Cl soln. to yield 54% $BzOEt$, b. 212-13°, and 64% Ph_3COH, m. 161-2° (from EtOH). PhMgBr (from 23 g. PhBr) was treated analogously with 8 g. $O(CO_2Bu)_2$ to yield 4 g. $BzOBu$, b. 248-9°, and 6.3 g. Ph_3COH.

G. M. Kosolapoff

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1ST AND 2ND ORDERS

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Cd

Synthesis of some quinazoline derivatives structurally close to alkaloids. A. A. Shamshurin. *J. Gen. Chem.* (U. S. S. R.) 13, 573-8(1943)(English summary).—Homopiperonyloyl chloride (from the acid and $SOCl_2$) (10 g.) was reacted in cooled 50% AcOH with 9 g. 6-aminoveratraldehyde in the presence of NaOAc, to yield *homopiperonylamidoveratraldehyde* (5 g.), m. 153.5-4° (from dil. EtOH), which gives an emerald-green color with H_2SO_4. The above (2 g.) was heated in a sealed tube with 30 cc. MeOH satd. with NH_3 for 2 hrs. at 110-20°, to yield 1.63 g. *2-piperonyl-6,7-dimethoxyquinazoline*, m. 148.5-9° (from ligroin); yellow color with H_2SO_4. *Homopiperonylamidopiperonal*, prepd. analogously from 6-aminopiperonal, m. 179-80° (from 70% EtOH). The above (3 g.) and 40 cc. MeOH, satd. with NH_3, in a sealed tube for 2 hrs. at 110-20°, gave 2.4 g. *2-piperonyl-6,7-methylenedioxyquinazoline*, m. 190.5-1° (from ligroin); yellow color with H_2SO_4. The above (2.5 g.) suspended in 150 cc. H_2O was treated over 1.5 hrs. with 150 g. 4% Na-Hg, to yield 32% *2-piperonyl-6,7-methylenedioxytetrahydroquinazoline*, m. 212-13° (from ligroin); *HCl salt*, m. 238° (decompn.).

G. M. Kosolapoff

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A new synthesis of γ-resorcylaldehyde. A. A. Shamshurin, *J. Gen. Chem.* (U.S.S.R.) 14, 211-15(1944) (English summary).—4-Methyl-7-hydroxycoumarin and allyl iodide in Me_2CO or C_6H_6 give 97% 4-methyl-7-allyloxycoumarin. When this is boiled 18 hrs. in decalin it gives 93.5% 4-methyl-2-hydroxy-8-allylcoumarin which is heated 0.5 hr. with 20% NaOH in a N atm. to give 51.3% 2-allylresorcinol (I) and 32.1% 2-methyl-4-hydroxycoumaran, m. 110°. I and Me_2SO_4 give 96% of the *di-Me ether*, b_4 114°, d_{20}^{20} 1.0492, n_D^{20} 1.5352, MRD calcd. 52.21, found, 52.71. This is refluxed 10 hrs. with alc. KOH to give 96% *2,6-dimethoxy-1-propenylbenzene*, b_{10} 110-13°, d_{20}^{20} 1.0543, n_D^{20} 1.5402, MRD calcd. 52.21, found, 52.01. $Na_2Cr_2O_7$ oxidation in the presence of sulfanilic acid gives 70% 2,6-$(MeO)_2C_6H_3CHO$ which is demethylated with $AlCl_3$ to give first 74% mono-Me ether, m. 74-5°, and then 67% γ-resorcylaldehyde.

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1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

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Structure and synthesis of 2-methyl-4-hydroxycoumaran. A. A. Shamshurin. *J. Gen. Chem.* (U.S.S.R.) 14, 881-4 (1944) (English summary).—*6-Allylresorcinol* was prepd. from 4-methyl-7-hydroxycoumarin allyl ether which was isomerized in boiling dioxane to 4-methyl-7-hydroxy-8-allylcoumarin; 50 g. of the latter heated for 1 hr. on a water bath with 400 cc. 30% NaOH, neutralized by HCl, extd. with Et_2O and the sol. distd., gave 53.0% 2-allylresorcinol, b_{10} 184-5°, and 30.8% *2-methyl-4-hydroxycoumaran*, b_{10} 175-7°, m. 117-18°. The latter compd. is readily prepd. from the former by heating with aq. HBr on a steam bath for 4 hrs.; a slightly lower yield is obtained when the HBr is used in AcOH. It is readily prepd. on hydrogenation of 2-methyl-4-hydroxycoumarone.

G. M. Kosolapoff

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Ca

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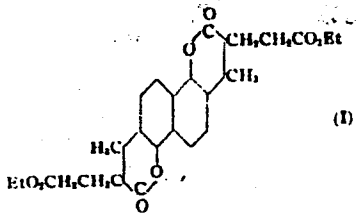
Condensation of dihydroxynaphthalene with α-acetoglutaric ester. A. A. Shamshurin. *J. Gen. Chem.* (U.S.S.R.) 14, 885-8(1944)(English summary).—1,5-$C_{10}H_6(OH)_2$ (8 g.) is mixed with 27.6 g. di-Et α-acetylglutarate, and with ice-cooling treated with 90 g. cold concd. H_2SO_4. After 30-40 min. a ppt. is formed. On standing overnight, the mixt. is treated with ice-water and the product filtered off and water-washed; di-Et 4,4'-dimethylnaphthodipyrone-3,3'-dipropionate (I), m. 162-3° (from dil. EtOH), was obtained in 7.2-g. yield. Hydrolysis by boiling with 4 N



(I)

NaOH gave the corresponding *acid*, m. 227-8° (from MeOH); its *Ag salt* is amorphous. G. M. Kosolapoff

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CA

10

Synthesis of *dl*-1-(2,6-dimethoxyphenyl)-2-aminoethane. A. A. Shamshurin (Med. Inst. Samarkand). *J. Gen. Chem.* (U.S.S.R.) 15, 978-80(1945).—The prepn. of *dl-1-(2,6-dimethoxyphenyl)-2-aminoethane* (I) for physiol. evaluation in comparison with similar compds. is given. 2-Acetylresorcinol was prepd. by alk. cleavage of 7-hydroxy-8-acetyl-4-methylcoumarin (cf. Limaye and Gangal, C.A. 31, 2182[2]); 9 g. of the dimethylated ketone, 4.5 g. NH_4OHCl, and 45 cc. EtOH in the presence of 15 cc. water and 3 g. NaOH gave *2,6-dimethoxyacetophenone oxime*, m. 161-2° (from petr. ether). This (10 g.) in AcOH was treated with 300 g. 3% Na-Hg with gradual addn. of water; after 4 hrs., when the soln. became alk., it was extd. with Et_2O, the ext. was shaken out with dil. HCl, and I was liberated by addn. of alkali, followed by Et_2O extn. and distn. *in vacuo*; I, b. 204-5°, 4.2 g.; *HCl salt*, m. 182-3° (from $(CH_2Cl)_2$); *N-benzoyl deriv.*, m. 105.5-6.5° (from petr. ether); *oxalate*, m. 170-1° (from EtOH); *picrate*, m. 185.5-6.5° (from MeOH). G. M. K.

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SHAMSHURIN, A. A.

Synthesis of o,p'-dimethoxystyrene. A. A. Shamshurin. (Samarkand Med. Inst.) *J. Gen. Chem.* (U.S.S.R.) 16, 99-101(1946). 7-Hydroxy-4-methylcoumarin (88 g.) added to 30 g. NaOH in 100 cc. water and 500 g. ice and the mixt. treated with 60 g. Ac_2O yielded 95% Ac deriv. 2-Acetyl resorcinol was then prepd. according to Limaye (C. A. 31, 2182) in 89% yield, m. 155.6°. Methylation with Me_2SO_4 gave, on cooling, the *di-Me ether of 2-acetylresorcinol*, m. 72.3°; the mother liquor gave, on acidification, crude *mono-Me deriv.*, which, treated with Et_2SO_4, gave the *Me Et ether of 2-acetylresorcinol*, m. 86° (from water). Reduction of the di-Me ether with Na in EtOH, according to Limaye, gave 60% *methyl-2,6-dimethoxyphenylcarbinol*, m. 58°; *phenylurethan*, m. 59-60°. The carbinol slowly distd. at 160-200° in the presence of 1.5% $KHSO_4$, yielded 60% *2,6-dimethoxystyrene*, bp. 92°, d_{20}^{20} 1.0145. Bromination in $CHCl_3$ gave the *dibromide*, m. 139-40° (from EtOH), while hydrogenation over Pt in AcOH gave *2,6-dimethoxy-1-ethylbenzene*, m. 59-60°. The styrene (1.7 g.) with 2.5 g. $Hg(OAc)_2$ in 25 cc. water yielded flocculent *1-(acetomercurimethyl)-2,6-dimethoxyphenylcarbinol*, m. 202.3°; this, with aq. KCl in EtOH, gave *1-(chloromercurimethyl)-2,6-dimethoxyphenylcarbinol*, m. 143.5° (from PhMe) which, on reduction with 2% Na Hg in water, gave the original carbinol.

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PROCESSES AND PROPERTIES INDEX

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Synthesis of the structural fragments of rotenone and of its satellites. I. Syntheses in the tubic acid series. A. A. Shamshurin (Samarkand Med. Inst.). *J. Gen. Chem.* (U.S.S.R.) **16**, 1877-84(1946).—It was found possible to start with a benzenoid nucleus and to add to it the condensed furan ring. However, attempts to condense 2,6-$(HO)_2C_6H_3CHO$ with chloro(or bromo)acetone in the presence of EtONa failed because of extensive tar formation. Successful syntheses were made starting with Me 2,4-dihydroxy-3-formylbenzoate (I), m. 137-8°, prepd. according to Shah and Laiwalla (cf. *C.A.* **33**, 1297). I (9 g.) in 225 cc. abs. EtOH at room temp. was treated with EtONa (from 1.4 g. Na and 40 cc. EtOH), followed by 10 g. freshly-distd. $ClCH_2COMe$; after heating on a steam bath 3 hrs., the solvent was removed at 40° *in vacuo*, and the residue dissolved in H_2O and extd. with Et_2O; the ext. on distn. with steam yielded a residue of 8 g. crude *2-acetyl-4-hydroxy-5-carbomethoxycoumarone* (II), m. 178-9° (from petr. ether); heating with excess MeI in Me_2CO 18 hrs. gave the *Me ether*, m. 81-2° (from ligroin), while acetylation in pyridine with Ac_2O at room temp. for 3 days gave the *acetate*, m. 160-60.5° (from ligroin); *benzoate* (using BzCl in pyridine, 2-3 days at room temp, then 2 hrs. at 60-5°) m. 148-9° (from dil. EtOH); *oxime* (using $HONH_2Cl$ and KOAc in dil. EtOH) m. 227-8° (decompn.; from dil. EtOH); *semicarbazone* (prepn. at room temp.; 4 days' standing) m. 243-4° (from MeOH); *2,4-dinitrophenylhydrazone* m. 265-6° (from dil. AcOH). II (3 g.) and 7 g. NaOH in 60 cc. H_2O and 50 cc. EtOH, refluxed 0.5 hr., cooled, dild. with 250 cc. H_2O, filtered, and acidified with HCl, gave *2-acetyl-4-hydroxy-5-carboxycoumarone*, m. 230.5-31° (from dil. AcOH); the acid gave a deep-blue color with $FeCl_3$, typical of *o*-phenolcarboxylic acids. Further proof of structure was afforded by decarboxylation: 0.8 g. of the acid, 40 g. dry quinoline, and 4 g. Naturkupfer C were heated to 200-30° 0.75 hr.; after cooling, dild. with Et_2O, and treatment with 3% HCl after filtration, the acid ext. was extd. with Et_2O to give 0.42 g. *2-acetyl-4-hydroxycoumarone* (III), m. 178-9° (from H_2O), which failed to give a color reaction with $FeCl_3$; *benzoate* (using Bz_2O and BzONa) m. 109.5-10.5° (from aq. MeOH); *oxime* m. 222-3° (from dil. EtOH); *2,4-dinitrophenylhydrazone* m. 242-3° (from AcOH). A successful attempt at carboxylation of the product was made: 2.5 cc. dry MeOH and 0.25 g. Na in a steel bomb were treated with 0.3 g. III and 5 g. solid CO_2 and heated to 180° 2 hrs., yielding, after acidification with HCl, 1.25 g. *2-acetyl-4-hydroxy-5-carboxycoumarone*, m. 228-9°, identical with an authentic sample.

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SHAMSHURIN, A. A.

"The Chemical Composition of Cotton Wax," Priroda, No.1, 1948

Lab. Organic Chemistry, Samarkand Med. Inst.

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SMA [illegible], A. A.

"All-Union Scientific Research Institute of Fur Studies in Samarkand," Priroda, No. 5, 1948.

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SHAMSHURIN, A. A.

"200th Anniversary of the Discovery of Sucrose in Beets," Priroda, No.10, 1948

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PA 23/49T15

USSR/Chemistry - Oil, Seeds Bearing Nov 48
Chemistry - Tung Oil

"Oil From the Seed of the Catalpa Bignontoides,"
A. A. Shamshurin, $\frac{1}{2}$ p

"Priroda" No 11

Tree is common in gardens, squares and parks of Central Asia republics. Oil resembles that of tung tree. Table shows chemical constants of both oils.

23/49T15

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The thermal polymerization of simple ethers of the allyl phenols. I. Polymerization of the methyl, ethyl, and isopropyl ethers of 2-allylphenol. A. A. Shamshurin and R. A. Ibsidulin (Samarkand Med. Inst.). Z. Gen. Chem. (U.S.S.R.) 19, No. 9, 399-404(1949)(English translation). See C.I. 44, 1443f. Ether incorrectly translated ester.

F. I. C.

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CA

Thermal polymerization of allylphenol ethers. I. Polymerization of methyl, ethyl, and isopropyl ethers of 2-allylphenol. A. A. Shamshurin and R. A. Ibadulin. *Zhur. Obshchei Khim.* (*J. Gen. Chem.*) 19, 1669-74(1949). —Homogeneous polymerization of the ethers at 250° yields only the dimers, apparently with linear structure (Staudinger viscometric method) and with a residual double bond. The process can be followed by the variation of n_D over the 200-hr. expt. in sealed tubes.; density can be used also, but viscosity gives but a small variation with the Me and Et ethers, although with the iso-Pr deriv. the change is large. The time-property curves are essentially linear, with the iso-Pr deriv. giving a rather sharp increase in 1st 50 hrs., followed by a linear curve up to 200 hrs., when 53.6% Me, 31.91% Et, and 65.15% iso-Pr derivs. are polymerized. *2-Allylphenol*, prepd. in 72%, yield by rearrangement of $PhOCH_2CH:CH_2$ 6 hrs. at 190-220°, b_{15} 101-3°, b_{760} 218-19°, d_{20}^{20} 1.0161, n_D^{20} 1.5181, was converted to the *ethers* in 48-72°, yields by heating with RX in alc. EtONa: *Me*, b_5 60-2°, d_{20}^{20} 0.9761, n_D^{20} 1.5232 (*dimer*, viscous liquid); *Et*, b_5 70-1°, d_{20}^{20} 0.9511, n_D^{20} 1.5110 (*dimer*, similar to the above); *iso-Pr*, b_5 65°, d_{20}^{20} 0.9315, n_D^{20} 1.5015; (*dimer*, similar to the above). All dimers add Br.

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CA

Synthesis of tetrahydrotubanol and tetrahydrotubaic acid. A. A. Shamshurin (Lab. Org. Chem., Samark. Med. Inst.). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 19, 1964-8(1949).—2,4-$(MeO)_2C_6H_3CO_2Me$ (24.6 g.) in 75 ml. refluxing C_6H_6 treated with 2.3 g. Na and boiled 8 hrs., followed by addn. of 15 g. $BrCH_2CH{:}CMe_2$ and refluxing 6 hrs., gave 6.2 g. *Me isodihydrotubate*, m. 86–7° (from dil. MeOH), which on standing 75 hrs. with 15% NaOH gave the *free acid*, m. 165-6°. This (3 g.) hydrogenated with Pt oxide in abs. EtOH gave 2.2 g. *tetrahydrotubaic acid*, m. 206° (decompn.; from 25% EtOH), which on refluxing 1 hr. with Cu bronze in quinoline gave *tetrahydrotubanol*, m. 81.5-2.5° (from petr. ether). The latter was converted to *8-isoamyl-7-methoxycoumarin*, m. 83–4°, according to Haller and Acree (*C.A.* 28, 4410[8]), thus confirming the syntheses.

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

IBADULIN R.A.; SHAMSHURIN, A.A.

Thermal polymerization of allyl phenol. Dokl. AN Tadzh.SSR no.1:8-12 '51. (MLRA 9:10)

1. Insitut khimii Akademii nauk Tadzhikskoy SSSR, Kafedra khimii Uzbekskogo Gosudarstvennogo universiteta. Predstavleno deystvitel'nym chlenom Akademii nauk Tadzhikskoy SSR S.Yusupovoy.

(Polymers and polumerization)
(Cresol)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.

Studying the gum of guayule. Dokl. AN Tadzh. SSR no.1:13-18 '51. (MLRA 9:10)

1. Insitut khimii Akademii nauk Tadzhikskoy SSR. Predstavleno chlenom-korrespondentom Akademii nauk Tadzhikskoy SSR V.F. Petrovym.
(Gums and resins) (Guayule)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

USSR/Chemistry - Organic Raw Materials; Toxic Substances Oct 51

"Gossipol," A. A. Shamshurin

"Priroda" No 10, pp 54, 55

In view of the fact that the toxic constituent of cotton seed oil cake, gossipol, may poison animals to which the cake is fed, considerable attention has been paid in the USSR to methods of extracting gossipol and making it harmless if it remains in the cake. USSR chemists, by applying hydrolysis of the acetate with steam in alc soln or in vacuum, improved

211T38

the method of extraction to such an extent that the yield is twice of that obtained in the US. The use of large quantities of gossipol as a starting material for the synthesis of antiseptics, drugs, dyestuffs, antioxidants for rubber, plastics, etc., is envisaged.

211T38

SHAMSHURIN, A. A.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

PA 194T56

USSR/Chemistry - Insecticides Nov 51

"Syntheses of Structural Fragments of Rotenone and Substances Occurring Together With It. Syntheses in the Field of Tubic Acid." A. A. Shamshurin, Lab of Org Chem, Samarkand Med Inst imeni I. P. Pavlov

"Zhur Obshch Khim" Vol XXI, No 11, pp 2068-2074

Synthesized for the 1st time tubanol and tubic acid, most important fragments of rotenone mol. Selectively hydrogenated 2-acetyl-4-hydroxy-5-carbomethoxycoumarone on Pd-C catalyst with satn of only furan ring. Product was sapond and decarboxylated, and resultant product was converted

194T56

USSR/Chemistry - Insecticides (Contd) Nov 51

by Grignard reaction into tert alc 4-hydroxycoumaranyl-dimethylcarbinol, which was converted to tubanol by bromination and splitting off of HBr by Ag acetate or alc alkali. Tubanol was converted to tubic acid by Kolbe method. This synthesis clears up question of structure of tubanol and tubic acid.

194T56

SHAMSHURIN, A. A.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.

Studying the gum of guayule. Report no. 2. Dokl. AN Tadzh.SSR no.5:19-22 '52. (MLRA 9:10)

1. Institut khimii AN Tadzhikskoy SSR. Predstavleno deystvitel'nym chlenom AN Tadzhikskoy SSR S. Yusupovoy.
(Gums and resins) (Guayule)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

1. SHAMSHURIN, A. A.

2. USSR (600)

4. Plastics

7. Preparation of synthetic resins and plastics. Khim. v shkole No. 1, 1953.

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

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A., dotsent (Kishinev)

Two experiments on carbohydrates. Khim. v shkole 11 no.1: 56-58 Ja-F '56. (MLRA 9:2)
(Carbohydrates) (Chemistry--Experiments)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A. (Kishinev)

Laboratory synthesis of DDT. Khim. v shkole 15 no.6:78-79 N-D '60. (MIRA 13:11)

(Ethane)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

LAZUR'YEVSKIY, Georgiy Vasil'yevich; TERENT'YEVA, Ida Vladimirovna; SHAMSHURIN, Aleksandr Andreyevich; TSUKERVANIK, I.P., red.; STUKOVNIN, N.D., red. izd-va; VORONINA, R.K., tekhn. red.

[Practical work in the chemistry of natural compounds] Prakticheskie raboty po khimii prirodnykh soedinenii. Moskva, Gos.izd-vo "Vysshaia shkola." No.1. [Methods of isolation, separation, and identification] Metody vydeleniia, razdeleniia i identifikatsii. 1961. 191 p. (MIRA 15:4)
(Chemistry, Organic--Laboratory manuals)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.; REVENKO, Yu.M.

Syntheses in the series of γ-substituted resorcinols. Izv. AN Mold. SSR no.10:86-97 '62. (MIRA 17:12)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A., kand.khimicheskikh nauk

Estrogenic growth stimulators in animal husbandry. Zhur. VKHO 8 no.6: 620-629 '63. (MIRA 17:2)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.; YAMPOL'SKAYA, M.A.

Syntheses in the 5-hydroxychromone series. Zhur.ob.khim. 34 no.2:535-538 F '64. (MIRA 17:3)

1. Institut khimii AN Moldavskoy SSR.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

LAZUR'YEVSKIY, G.V., akademik; SHAMSHURIN, A.A., kand. khim. nauk

Research in the field of natural and biologically active compounds. Vest. AN SSSR 35 no.2:62-65 F '65. (MIRA 18:3)

1. Institut khimii AN Moldavskoy SSR. 2. AN Moldavskoy SSR (for Lazur'yevskiy).

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A., kand.khim.nauk

Urea phosphate in stockbreeding. Priroda 54 no.10:67-68 '65. (MIRA 18:10)

1. Institut khimii AN Moldavskoy SSR, Kishinev.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.; REVENKO, Yu.M.

Synthesis of 1-(2',6'-dimethoxyphenyl)-2-amino-1-propanol.
Zhur. org. khim. 1 no.8:1439-1442 Ag '65. (MIRA 18:11)

1. Institut khimii AN Moldavskoy SSR.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.; KRIVOSHCHEKOVA, O.Ye.

New acceptor for the preparation of esters of pyrocarbonic acid. Zhur.VKHO 10 no.5:594 '65. (MIRA 18:11)

1. Institut khimii AN Moldavskoy SSR.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, A.A.; REKHTER, M.A.; NESTEROVA, I.P.

Synthesis of 11-aminoundecanoic acid from castor oil. Uch.zap. Kiev.un. 68:82-83 '63 [cover '64]. (MIRA 18:12)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

KRIV [illegible], O. Ye.; SHAMSHURIN, A.A.

Esterification of high-molecular acids with pyrocarbonic esters. Zhur. VKHO 10 no. 6:701 '65 (MIRA 19[illegible])

1. Institut khimii AN Moldavskoy SSR. Submitted Apr 1 29, 1965.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

L 36493-66 EWT(m)/EWP(j) RM

ACC NR: AP6027086 SOURCE CODE: UR/0079/65/035/010/1877/1878

30

AUTHOR: Shamshurin, A. A.; Krivoshchekova, O. Ye.; Krimer, M. Z.

B

ORG: Institute of Chemistry, AN MoldSSR (Institut khimii AN MoldSSR)

TITLE: Synthesis of dialkylcarbalkoxyphosphates

SOURCE: Zhurnal obshchey khimii, v. 35, no. 10, 1965, 1877-1878

TOPIC TAGS: chemical synthesis, phosphate, potassium compound, carbonate, ester, solubility, organic solvent, chemical stability, hydrolysis

ABSTRACT: To synthesize dialkylcarbalkoxyphosphates, the authors used various potassium monoalkylcarbonates as one component and dialkylchlorophosphates as the other component in accordance with the equation

$$ROCOOK + Cl(O)P(OR')_2 \rightarrow ROC(O)OP(O)(OR')_2$$

The 15 esters obtained were colorless liquids with a faint odor, sparingly soluble in water and soluble in ether, alcohol, benzene, and other organic solvents. They are unstable at room temperature and stable at 0°C. Hydrolysis results in the formation of dialkyl phosphate, alcohol, and carbon dioxide. The yield of dialkylcarbethoxyphosphates was 60%. The physicochemical properties of the products are presented. Orig. art. has: 1 table. [JPRS: 36,328]

SUB CODE: 07 / SUBM DATE: 14Dec64 / ORIG REF: 007

UDC: 546.185:547.26'118

Card 1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

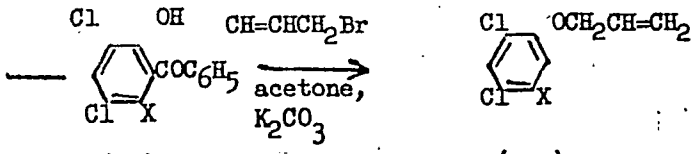
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

L 06531-67

ACC NR: AP7000464

0

Moscow, Zhurnal Organicheskoy Khimii, Vol 2, No 5, May 1966, pp 855-857



(II) (III)

(I, II, III) a) X = H; b) X = Cl

Orig. art. has: 1 formula. [JPRS: 37,023]

TOPIC TAGS: organic synthetic process, chlorinated organic compound, ketone

SUB CODE: 07 / SUBM DATE: 24 Jun 65 / ORIG REF: 001/ OTH REF: 003

Card 2/2 egk

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

1. SHAMSHURIN, V.

2. USSR (600)

4. Hides and Skins

7. Quality of raw leather at meat plants, Mias. ind. 24, No. 1, 1953

9. Monthly List of Russian Accessions, Library of Congress, May 1953, Uncl.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, V.

Reasons for the low quality of raw hides. Mias.ind.SSSR 26 no.5: 25-27 '55. (MLRA 9:2)

1.Gosudarstvennyy inspektor po kachestvu kozhevnogo i pushno-mekhovogo syr'ya.

(Hides and skins)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, V.D., starshiy prepodavatel'

Collectives and shock workers of communist labor in the vangaurd of the struggle for high labor productivity. Izv. vys. ucheb. zav.; gor. zhur. 6 no.9:76-81 '63. (MIRA 17:1)

1. Sverdlovskiy gornyy institut imeni Vakhrusheva. Rekomendovana kafedroy istorii Kommunisticheskoy partii Sovetskogo Soyuza.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, V.I.

Major lack of presision in defining standards. Leg.prom. 15 no.11:19-20 N '55. (MLRA 9:2)

1.Gosinspektor kachestva syr'ya.
(Leather--Standards)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

[illegible], A.Z., dotsent, kand. tekhn. nauk; [illegible], V.I., inzh.

Calculation of gravity embankments. Trudy LIVT no.66:9-11 '64.
(MIRA 19:2)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, V.M.

For successful control of gadflies in 1953. Veterinariia 30 no.2: 29-30 F '53. (MLRA 6:2)

1. Nachal'nik Sverdlovskogo otdeleniya gosinspektsii po kachestvu kozhsyr'ya pri MLP SSSR.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, V.M.

Improve the salvaging of raw leather waste. Kozh.-obuv.prom.3 no.3:9 Mr '61. (MIRA 14:6)

(Waste products)
(Leather industry)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

1. SHAMSHURIN, Yu.

2. USSR (600)

4. Russia, Northern - Social Conditions

7. "By the frozen sea." Vokrug sveta No. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHURIN, Yu.

Spring on the Kolyma. Vokrug sveta no.9:11-16 S '53. (MLRA 6:10)
(Kolyma valley--Description and travel)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

PIVOVAROV, Yu.A.; SHAMSHURIN, Yu.A.

Instantaneous value of torque in At-100-2 looms. Izv. vys. ucheb. zav.; tekh. teks. prom. no. 2:124-127 '61. (MIRA 14:5)

1. Leningradskiy tekstil'nyy institut imeni S.M. Kirova.
(Looms) (Dynamometer)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

PIVOVAROV, Yu.A.; SHAMSHURIN, Yu.A.

Two methods of determining power consumption of looms. Izv.vys. ucheb.zav.; tekh.tekst.prom. no.6:121-125 '62. (MIRA 16:2)

1. Leningradskiy tekstil'nyy institut imeni Kirova.
(Looms--Testing)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSHUROV, V., polkovnik

Solution of a problem. Voen. vest. 42 no.10:91 O '62. (MIRA 15:10)
(Attack and defense (Military science))

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIDDINOV, B.

Effectiveness of narrower rows and cross-cultivation of cotton.
Izv.Otd.est.nauk AN Tadzh.SSR no.11:39-58 '55. (MLRA 9:10)

1.Otdel khlopkovodstva Akademii nauk Tadzhikskoy SSR.
(Cotton growing)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

Name	:	SHAMSIDDINOV, B.
Dissertation	:	Reduction of row spacing and checkrow cotton planting in the Gissar Valley in the Tajik SSR
Degree	:	Cand Agr Sci
Defended At	:	Acad Sci Tajik SSR
Publication Date, Place	:	1956, Stalinabad
Source	:	Knizhnaya Letopis' No 5, 1957

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIUDINOV, K.Sh., assistent

Copper content in the blood of a parturient worman and in the blood of the umbilical vein. Nauch. trudy SamMI 21:195-197 '62. (MIRA 17:5)

1. Iz kafedry biologicheskoy khimii Samarkandskogo meditsinskogo instituta imeni Pavlova.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

YERMAKOV, Ye.I.; SHAMSIYEV, A.

Growing plants on porous ceramics in research work. Trudy Otd. fiziol. i biofiz. rast. AN Tadzh. SSR 3: 124-135 '64. (MIRA 18:4)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

[illegible], A. [illegible]

Dissertation: "Analysis of the Cause of Cavings in Drilling." Cand Tech Sci, Inst of Petroleum, Acad Sci Azerbaydzhan SSR, 28 Apr 54. (Vakinskiy Rabochiy, Baku, 18 Apr 54)

SO: SOM 243, 19 Oct 1954

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIYEV, Azad Akhmed ogly; SEID-RZA, M., redaktor; GONCHAROV, I.A., tekhnicheskiy redaktor

[Collapse of ground while drilling oil and gas wells] Obvaly porod pri burenii neftianykh i gazovykh skvazhin. Baku, Azerbaidzhanskoe gos. izd-vo neftianoi nauchno-tekhn. lit-ry, 1955. 116 p. (MLRA 9:4)

(Oil well drilling) (Gas, Natural)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

KULIYEV, S.M.; SHAMSIYEV, A.A.; KULIYEV, A.E.

Drilling with hydraulic monitors. Dokl.AN Azerb.SSR 13 no.7:743-748 '57. (MIRA 10:7)

(Petroleum--Well boring)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIYEV, A.A.

Drilling resistance of rocks. Dokl. AN Azerb. SSR 13 no.8:843-845 '57. (MLRA 10:9)

1. Neftyanaya ekspeditsiya. Predstavleno akademikom AN Azerbaydzhanskoy SSR Z.I.Khalilovym.

(Oil well drilling)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIYEV, A.A.

Maximum counterpressure on caving rocks during drilling.
Dokl.AN Azerb.SSR 15 no.8:681-683 '58. (MIRA 13:1)

1. Neftyanaya ekspeditsiya AN AzerSSR. Predstavleno akademikom AN AzerSSR Z.I.Khalilovym.
(Oil well drilling)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

KULIYEV, S.M.; SHAMSIYEV, A.A.; KULIYEV, A.A.

Hydraulic giant drilling [in Azerbaijani with summary in Russian]. Azerb. neft. khoz. 37 no.9:19-21 S '58. (MIRA 11:12)
(Boring)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

KULIYEV, S.M.; SHAMSIYEV, A.A.; KULIYEV, A.E.

Determining efficient fluid consumption in hydraulic jet drilling. Azerb.neft.khoz. 37 no.12:12-13 D '58. (MIRA 12:3)
(Oil well drilling fluids)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIYEV, A.A.

Effect of the specific weight of drilling fluids on the mechanical speed of the hydraulic formation of well cavities. Azerb. neft. khoz. 38 no.6:16-17 Je '59. (MIRA 12:10)
(Oil well drilling)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIYEV, A.A.; BABAYEV, N.B.

Drilling under great pressure drop in the bit opening. Azerb. neft.khoz. 38 no.11:17-18 N '59. (MIRA 13:5)
(Boring machinery)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

DASHDAMIROV, F.A.; SHAMSIYEV, A.A.

Causes of freezing of drilling tools. Azerb.neft.khoz. 38 no.12: 15-16 D'59. (MIRA 13:10)

(Boring machinery)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

BABAYEV, N.B.; SHAMSIYEV, A.A.

Experimental study of distance and immersion in jetting methods. Izv. vys. ucheb. zav.; neft' i gaz 3 no.9:127-129 '60. (MIRA 14:4)

1. Azerbaydzhanskiy institut nefti i khimii imeni M. Azizbekova i Azerbaydzhanskiy nauchno-issledovatel'skiy institut po dobyche nefti.

(Oil well drilling)

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R001548310006-3

SHAMSIYEV, A.A.

Cause of cavern formation in well drilling [in Azerbaijani with summary in Russian]. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekh. nauk no.6:151-153 '60. (MIRA 14:8)
(Oil well drilling)

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SHAMSIYEV, A.A.; BABAYEV, N.B.; FINKEL'SHTEYN, G.M.

One cause of the collapse of casing pipes in the process of being lowered into a well [in Azerbaijani with summary in Russian]. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekh. nauk no.6:159-161 '60. (MIRA 14:8)

(Oil well drilling)

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SHAMSIYEV, A.A.

Stresses in the well bottom rock. Trudy AzNII DN no.10:344-347 '60. (MIRA 14:4)

(Oil well drilling) (Strains and stresses)

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BABAYEV, N.B.; SHAMSIYEV, A.A.

Drilling wells with three-bladed bits under heavy load. Azerb. neft. khoz. 39 no.3(405):15-17 Mr '60. (MIRA 14:9)
(Rock drills)

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SHAMSIYEV, A. A.

Moisture content of rocks in well sinking. Azerb. neft. khoz. 39 no.6:10-11 Je '60. (MIRA 13:10)
(Water, Underground)

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DASHDAMIROV, F.A.; SHAMSIYEV, A.A.

Experimental testing of the adhesiveness of drilling mud crusts. Azerb. neft. khoz. 39 no.10:19-20 O '60. (MIRA 13:11)
(Oil well drilling)

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SHAMSIYEV, A.A.; ASKEROV, F.A.; ISMAILOV, A.M.

Strength of some Azerbaijan rocks under uniaxial expansion and contraction. Azerb. neft. khoz. 39 no.12:17-18 D '60. (MIRA 14:9)

(Azerbaijan--Rocks--Testing)

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SHAMSIYEV, A.A.

Wetting of the clay portion of well walls during drilling as the result of plastic deformation. Dokl. AN Azerb. SSR 17 no. 2:115-118 '61. (MIRA 14:4)

(Clays) (Wells)

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SHAMSIYEV, A.A.; ABDUL-ZADE, A.M.

Kinematics of roller bits with displaced axes. Azerb. neft. khoz 40 no.11:17-18, 32 N '61. (MIRA 15:1)
(Oil well drilling--Equipment and supplies)

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BABAYEV, N.B.; SHAMSIYEV, A.A.

Causes of possible freezing of drilling pipes due to the differential pressure between the well and the layer. Azerb.neft.khoz. 40 no.12:28-30 D '61. (MIRA 15:8)
(Oil well drilling--Safety measures)

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BABAYEV, N.Kh., kand. tekhn. nauk; SHAMSIYEV, A.A., red.;
RASHEVSKAYA, T.A., red. izd-va; AKHMEDOV, S., tekhn.red.

[Drilling deep wells in offshore areas of Azerbaijan]Burenie glubokikh skvazhin na morskikh ploshchadiakh Azerbaidzhana. Baku, Azerneshr, 1962. 209 p. (MIRA 15:12)
(Azerbaijan--Oil well drilling, Submarine)

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DASHDAMIROV, F.A.; SHAMSIYEV, A.A.

Effectiveness of petroleum baths in controlling the freezing of drilling tools. Izv. AN Azerb. SSR Ser.geol.-geog. nauk i nefti no.2:81-86 '62. (MIRA 15:6)

(Oil well drilling fluids)

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KULIYEV, S.M.; ABDUL-ZADE, A.M.; SHAMSIYEV, A.A.

Wear of the teeth of sliding drilling bits. Dokl. AN Azerb. SSR 18 no.2:15-18 '62. (MIRA 15:7)

1. Institut razrabotki neftyanykh i gazovykh mestorozhdeniy AN AzSSR.

(Boring machinery)

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ABDULZADE, A.M.; SHAMSIYEV, A.A.

Effect of geometrical parameters of cones on the sliding of bits. (MIRA 15:8)
Azerb.neft.khoz. 41 no.3:16-17 Mr '62.
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SHAMSIYEV, A.A.; ABDUL-ZADE, A.M.

On the kinematics of roller bits with displaced axes.
Izv. AN Azerb.SSR. Ser. fiz.-mat. i tekh. nauk no.4:131-137
'62. (MIRA 16:2)
(Cutting machines)

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SHAMSIYEV, A.A.; FARADZHEV, T.G.

Experimental study of clay rocks on well walls. Azerb.neft. khoz. 41 no.5:14-17 My '62. (MIRA 16:2)
(Oil wells—Testing) (Clay—Testing)

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ABDUL-ZADE, A.M.; SHAMSIYEV, A.A.

Using roller bits for the calibration of borehole walls. Izv. AN Azerb.SSR.Ser.geol.-geog.nauk i nefti no.3:105-109 '62. (MIRA 15:12)

(Boring)

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KULIYEV, S. M.; ABDUL-ZADE, A. M.; SHAMSIYEV, A. A.

Distribution of stresses under the teeth of a roller bit. Izv. AN Azerb. SSR. Ser. fiz.-mat. i tekh. nauk no.2:95-100 '62. (MIRA 15:10)

(Boring)

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DASHDAMIROV, F.A.; SHAMSIYEV, A.A.

Experimental determination of the coefficient of friction of mud cakes. Azerb. neft. khoz. 40 no.5:16-19 My '61. (MIRA 16:12)

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