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Preparation of tetrachloroethane and trichloroethylene. S. YA. MILOSLAVSKII AND I. YA. POSTOVSKII. *J. Ind. Chem.* (Moscow) 7, 1414-9(1930).—The existing methods for prepn. of CCl_2:CHCl and $CHCl_2CHCl_2$ are discussed. A brief account is given of the exptl. work based on the information found in various patents and the literature on the subject.

CHAS BLANC

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ca

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Experiments for removing sulfur from Chusovskie Gorodki (Ural) distillates. I. YA. POSTOVSKII AND V. G. PLYUSNIN. *Neftyanoe Khoyaistvo* 19, 561-4(1930).—The distillates from the crude oils contained the following amts. of S:

Fraction	Content of S in fraction	Content of S in mercaptans
Below 100°	0.19%	0.09%
100-150°	0.25%	0.00%
150-200°	0.60%	0.00%
200-270°	2.00%	0.30%

The remainder of the S was present in the form of cyclic S compds. Various known methods to remove this S were tried without success. Finally an app. was constructed in which the fractions were treated in the vapor phase by passing them together with steam at 350° and 450° over small lumps of Alapaev (Ural) iron ore, whereby a colorless distillate was collected in the receiver. However, when the admission of steam was discontinued for awhile and then started, an emulsion contg. elementary S was obtained in the receiver. This probably indicates that an oxidation occurs above the layer of ore and that the SO_2 produced reacts with the H_2S formed after the steam is admitted. Because of the fact that elementary S is sol. in distillates, better results are obtained in a treatment in the presence of steam. It was possible by this method to lower the S content of the first 100 cc. which distd. from 1.25% to 0.25% with a treating loss of 5% of the distillate. The S was lowered to 0.14% by treatment with 2% of strong H_2SO_4. The activity of the catalyst was lowered by the formation of C.

A. A. BOBRTSINOK

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Structure of betulin. I. Ya. Postovskii. *J. Russ. Phys.-Chem. Soc.* 62, 101-9 (1930).—P. gives a preliminary account of the exptl. investigation toward elucidation of the structural formula of betulin (I) which was prepd. according to Schulze (*C. A.* 17, 730) from very finely powd. birch bark; the product recrystd. first from PhH and then from alc. (yield about 20% based on the bark), m. 253-4°. Two g. of I in 65 cc. of AcOH was treated with 0.7 g. of $KMnO_4$ in 25 cc. of 60% AcOH, heated to 60° for 15 min. on a water bath, filtered with suction while still warm, the filtrate poured into H_2O, dried, and the ppt. extd with alc., and recrystd. from alc., m. 207-8° (yield 55%). The product is tentatively considered as hydroxybetulin of the empirical formula $C_{27}H_{46}O_2$, which on boiling with 10 vols. of AcH gives $C_{27}H_{46}O_2COMe$ (yield 70%), m. 210°. The so-called betulin oil was obtained in 85% yield on heating I with activated C at 300°; the green, viscous oil produced several fractions, the compn. of which will be the subject of future investigation. Chas. Blanc

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Chemistry of polyene pigments. The condensation product of benzylidenacetone. I. Ya. Postovskii and B. P. Lugovkin. *J. Gen. Chem.* (U. S. S. R.) 1, 1008–11(1931).—Kuhn and Winterstein (*C. A.* 23, 4682) by aldolic condensation of crotonaldehyde with subsequent cleavage of H_2O obtained a mixt. of polyene compds. of orange and red-orange color. It was of interest to investigate a similar reaction with ketones and obtain a polyene with a ramified chain, for which PhCH:CHCOMe (I) was selected (Borsche, *C. A.* 4, 590). The empirical formula $C_{16}H_{16}O$, the aldolic nature of the condensation and the clearly polyene character of the resulting product suggest the following scheme of formation of the polyene: 3 I ⟶ PhCH:CHC(OH)MeCH$_2$C(OH)(CH:CHPh)CH$_2$COCH:CHPh $-2H_2O$ ⟶ PhCH:CHCMe:CHC(CH:CHPh):CHCOCH:CHPh (II). The color reactions and formation of a black bromide changing on standing to brown also show the polyene nature of II (Kuhn and Wiegand, *C. A.* 23, 3712; K. and Winterstein, *Z. physiol. Chem.* 66, 27(1910); *C. A.* 22, 1768, 4464). Some polyenes (lycopin, carotene) absorb O of air and become decolorized, while II by gradual autoxidation is changed to a light yellow compd. ($C_{16}H_{16}O_3$), which on standing in the dark, and particularly on being heated, first gives off and then reabsorbs the O. The labile products of the initial absorption of O by polyenes may be the cause of the physiol. action of carotene. A mixt. of 3 g. of I and 6 g. of alc. 6% KOH was refluxed 45 min. on the water bath with frequent shaking, then the red-brown viscous mass was poured into water acidified with HCl, forming a ppt. of yellow flocks (1) and a dark brown hard mass (2); the latter was sepd. from (1), then washed with water, dried in a vacuum desiccator, extd. with a mixt. of 95% alc. and 5% C_6H_6 in a Soxhlet app. protected from the light (in some expts. the extn. was made in a CO_2 atm.), the microcryst. red product formed on the walls of the flask was filtered off and washed with alc., the operation being repeated 3 times, giving in all 60% of orange-red dichroic polyene, softening at 112° and m. 247–50°. The mother liquor of the extn. contained yellow flakes easily pptd. with water which were not investigated. The yellow flocks (1) when extd. as above produced orange-red crystals having a m. p. identical with that of the ext. from (2). The product

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is dried to const. wt. by heating 25-30 hrs. at 131° in vacuo over P_2O_5 in a revolving desiccator, and is preserved in a CO_2 atm. The mol. wt. in freezing C_6H_6 was 807.5 (calcd. 402 for $C_{24}H_{36}O$ and 804 for $(C_{24}H_{36}O)_2$). Color reactions: concd. H_2SO_4 violet; alc. CCl_3CO_2H green; $FeCl_3$ in Et_2O green; $Ac_2O + H_2SO_4$ litmus-blue. C. BLANC

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Low-temperature carbonization of Chelyabinsk coals. I. Ya. Postovskii and V. N. Novikov. *Khim. Tverdogo Topliva* 4, 265-72(1933); cf. following abstr.—The compns. of Chelyabinsk coals and the yields and compns. of various products obtained by low-temp. carbonization are given. A. A. Boehtlingk

COMMON ELEMENTS

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PROCESSES AND PROPERTIES INDEX

Operation of the carbonization retorts at Kémérovo. I. Ya. Postovskii and V. N. Novikov. *Coke and Chem.* (U. S. S. R.) 6, No. 5-6, 57-65(1934); *Chimie & industrie* 33, 508-9; cf. *C. A.* 28, 6273°.—A discussion of the nature and quality of the coke produced at Kémérovo, and more particularly of its heterogeneity, and means of obtaining greater homogeneity and a higher yield of better-quality tar. A. Papineau-Couture

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21

The content of low-boiling phenols in the Chelyabinsk primary coal tars. I. Ya. Postovskii, V. N. Novikov, and S. A. Glinskikh. *Coke and Chem.* (U. S. S. R.) 4, No. 11, 59-60(1934).—A yield of 8% PhOH and cresols was obtained from the benzene and kerosene fractions of 3 different samples of brown-coal tars. Chas. Blanc

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CA

21

Characteristics of pitch tar residue. I. Ya. Postovskii and V. N. Novikov. *Coke and Chem.* (U.S.S.R.) 1934, No. 8, 17-23.—The results of an investigation of different kinds of pitch tar residues for determining their suitability as raw material for the electrode briquet industries are described.

A. Pestoff

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3RD AND 4TH ORDERS

CA

21

Degree of unsaturation of the organic matter of coal. I. Ya Postovskii and A. A. Pustovskaya. *Coke & Chem. (U. S. S. R.)* 6, No. 12, 7-10(1935); *Chimie & industrie* 35, 555.—The degree of unsatn. of coal can be detd. as follows: place 2 g. of coal (ground to pass a sieve of 900 meshes per sq. cm. and dried at 105°) in a glass-stoppered flask, add 10 cc. of a 5% soln. of S_2Cl_2 in C_6H_6, let stand for 3 days at room temp., transfer the coal to a filter, wash with C_6H_6 till the washings are free from Cl, dry to const. wt. and det. the S content of the dried residue by Rechka's method; this gives the S combined chemically at the double bonds.

A. Papineau Couture

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Ca

8

The geochemistry of crude oils and bitumens of the Volga-Ural district. I. Ya. Postovskii, I. M. Polyakova and V. H. Getzen. *Khim. Tverdogo Topliva* 6, 459-71 (1935).—The fluorescence (observed with the Heraeus lamp) of crude oils and bitumens of different origins varies. By investigating the fluorescence, crude oil or bitumens from various origins can be identified. The hue of the fluorescence of crude oils and bitumens coincides. Among the investigated samples, the fluorescence of bitumens and crude oils from the Sterlitamak is particularly characteristic. Many Ural crude oils and bitumens (Sterlitamak and Sulzran) produce characteristic absorption spectra corresponding to the metal complex of porphyrites. The Chusov and the Ukhta crude oils (and the adjacent bitumens) do not give absorption spectra and do not contain porphyrites; this leads to the conclusion of a different genesis of these mined products. Spectroscopy and luminescence are proposed for a rapid characterization of the crude oil and bitumen deposits, particularly for the establishment of a relationship between crude oil and bitumen. Since many bitumens contain easily oxidizable porphyrites, the former cannot be products of weathering of crude oils. The presence of a number of V bitumens in the Sterlitamak and Chusov crude oils is shown and the connection of the V with the metal complexes of porphyrites is established. An asphaltite obtained from a deep oil well contg. nonacidic OH groups is described.

A. A. Boehtlingk

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CA

Active clays as polymerisation catalysts. I. The purification of crude motor benzene with active clays of the Urals. I. Ya. Postovskii and S. P. Tsikin. J. Applied Chem. (U.S.S.R.)9,61-71 (In German 72(1936).- Active acid clays of the Urals (Traitsko-Bainovskoe district) are described which equal or surpass American floridin in their ability to catalyse the polymerisation of unsatd. compds. The activity of the days was tested by their adsorption of methylene blue and their effect of the isomerisation of pinene. Their polymerising activity was studied with the individual tar-forming compds. found in crude benzene, i.e, indene, styrene, cyclopent adiene, polycyclopentadiene. The clays, preliminarily activated by heating to 250°, were as efficient as floridin. Good results were obtained in the purification of crude benzene in the liquid phase and in heating of primary benzene in the vapor phase. The consumption of H_2SO_4 for the crude benzene in the purification with clays was 0.2% the consumption of clay, not considering regeneration, 10%. The loss of benzene was [illegible]%. The polymers can be used for the prepn. of dyes. It was observed that the peroxides which form in crude pinene retard

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its isomerization by clays. Di-or poly-cyctopentadienes can be detected by adding to 2 cc. of sample, 2 cc. Ac_2O and then 2 cc. 80% H_2SO_4. In the presence of 0.06% or more, a cherry-red to deep violet color is formed. The formation of HCHO in the air oxidation of crude benzene was shown, probably arising from the side chain of styrene.

Lewis W. Butz

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The presence of thio ether sulfur in the organically combined sulfur in coal. I. Ya. Postovskii and A. B. Kharlampovich. *J. Applied Chem.* (U. S. S. R.) 9, 1476-81(in German 1481)(1936); cf. *C. A.* 30, 8565[7].—The presence of thio ether S in coal was proved by the CH_3I method (cf. *C. A.* 30, 4047[1]) and confirmed by oxidation of the thio ether S with 0.1 *N* $KMnO_4$ to sulfonate and then applying the above method. The applicability of these methods was tested on samples of coal treated with double the amt. of S at 125-30° for 1, 3, 4 and 30 hrs. During the treatment no evolution of H_2S was observed. The coal thus treated was heated 3 times with 25% Na_2SO_3 for 2 hrs. each time, to remove excess and adsorbed S, before the detn. of thio ether S. Twenty references.

A. A. Podgorny

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CA

21

Treatment of crude anthracene. I. Ya. Postovskii, B. I. Ardashev and V. I. Khmelevskii. Russ. 32,301, Dec. 31, 1937. Crude anthracene is treated with maleic anhydride and alkali to form a sol. compd. The soln. is sepd., acidified, and heated to 270° to sep. anthracene. From the anthracene-free residue carbazole is obtained by treatment with H_2SO_4 in the presence of C_6H_6.

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CA

Determination of phenanthrene. V. I. Khmelevskii and I. Ya. Postovskii. *Org. Chem. Ind.* (U. S. S. R.) 4, 303-6(1937). A min. of 15% phenanthrene (I) in crude anthracene can be detd. with an accuracy to 1.5% in 6 hrs. by the improved Williams' method (C. A. **16**, 92). By this method I can be completely oxidized to phenanthrenequinone (II), m. 203.5°, free from contaminating I derivs. To a 0.5-g. sample add 1 g. I_2O_5 (or equiv. amt. of HIO_3) and 20 ml. of 100% AcOH and reflux the mixt. for 2.5 hrs. Introduce 10 ml. of satd. $NaHSO_3$ soln., let stand for 5 min., dil. to about 150 ml. and filter. Decomp. the II bisulfate by the addn. of 2% $KMnO_4$ until the pptn. of II just begins, add NH_4OH to a slight alk. reaction, filter the II through a tared filter, wash the ppt. with dil. $(HCO_2H)_2$ to remove any MnO_2 and then with hot H_2O, dry at 105° to a const. wt. and det. as II.

Chas. Blanc

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a-3

Reaction of selenium dioxide with certain hydrazines. I. J. Postovski, B. P. Lugovkin, and G. F. Mandrik (J. Gen. Chem. Russ., 1937, 7, 37—42). —Certain substituted hydrazines and SeO_2 react in aq. solution as follows: $NHR{\cdot}NH_2{\cdot}HCl + SeO_2 \rightarrow R{\cdot}N_2Cl + Se + 2H_2O$ (R = Ph, p-C_6H_4Br, α- and β-$C_{10}H_7$, m-$C_6H_4{\cdot}NO_2$). When R = p-$C_6H_4{\cdot}NO_2$, the reaction proceeds further; $R{\cdot}N_2Cl$ (I) $\rightarrow R{\cdot}N_2{\cdot}OH \rightarrow$ p-$NH_2{\cdot}C_6H_4{\cdot}NO_2$ (II) + HNO_2; (I) + (II) $\rightarrow NO_2{\cdot}C_6H_4{\cdot}NH{\cdot}N{:}N{\cdot}C_6H_4{\cdot}NO_2$; $NHR{\cdot}NH_2 + HNO_2 \rightarrow NO_2{\cdot}C_6H_4{\cdot}N_3 + H_2O$. $NPh_2{\cdot}NH_2$ is oxidised as follows: $NPh_2{\cdot}NH_2 \rightarrow (NPh_2{\cdot}NH{\cdot})_2 \rightarrow NHPh_2 + N_2$. Semicarbazide yields hydrazodicarbonamide. R. T.

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Synthesis of perylene from anthracene. I. Ya. Postovskii and N. P. Bednyagina. *J. Gen. Chem.* (U.S.S.R.) 7, 2010-25(1937).—Anthracene treated with CH_2O and HCl (cf. Ger. 533,850, C. A. 26, 734) gave 95% of crude *9,10-dichloromethylanthracene* (I), m. 233-40°. This recrystd. from anisidine or $PhNO_2$ gave 65% I, m. 263-4° (decompn.). I oxidized with CrO_3 gave 80% anthraquinone, m. 282°, and with maleic anhydride (II) in xylene an addn. product, m. 285°. I (17 g.) with 43 g. sodiomalonic ester was boiled for 4 hrs., affording 92% *9,10-diethyl-1,1,1',1'-tetracarbethoxyanthracene*, m. 171°. This, saponif. with NaOH in dil. alc. and decompd. with HCl, gave 100% of the *free acid*, m. 244-6°. Because of the poor solv., it could not be purified. The acid (16 g.) heated at 245° and 10 mm. for 2-3 min. and the melt dissolved in 10-15% NaOH and decompd. with HCl gave 75-80% *9,10-anthracenedipropionic acid*, m. 244° (alc.). It gave with II in $PhNO_2$ an addn. product, m. 305-6°. Treating 3 g. of the acid with 8 ml. $SOCl_2$ in 2 ml. Et_2O and 1-2 drops of C_5H_5N at 40° for 1 hr. and distg. off the excess $SOCl_2$ *in vacuo* at 30-5° resulted in 100% of the *chloroanhydride deriv.*, m. 108-70°. It is easily decompd. by recrystn. from $CHCl_3$ and other solvents. The ring closure was effected by heating 3 g. of the chloroanhydride deriv. in 40 ml. $C_6H_5Cl_3$ with $AlCl_3$ at 50-60°. After the decompn. of the reaction product with HCl and expulsion of the solvent with steam, the green-brown ppt. was recrystd. from C_5H_5N, affording nearly 100% (47% based on anthracene) *3,9-diketo-1,2,7,8-tetrahydroperylene* (III), m. 340°. It is easily enolated, giving in C_5H_5N with Ac_2O the dienolacetate deriv., m. 289-90°. III is easily oxidized with CrO_3 to a black-violet quinone-like product, which is being investigated. III (1.4 g.) heated with 50 g. Zn dust gave 25-30% (based on anthracene) of crude *perylene*, m. 270-61°. It was purified over Al_2O_3 in CaH_2 by exposure to the light of a Hg quartz lamp (cf. Stikst, *Uspekhi Khim.* 5, 5 (1936)), giving 15-17% perylene, m. 264-5°. It is identical with the product obtained from 2,2-dihydroxy-1,1-binaphthyl by the Zincke method as modified by Sharvin and Soborovskii (C. A. 23, 4605). Thirty references.

Chas. Blanc

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CN

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Rapid determination of raw and concentrated anthracene. I. Ya. Postovskii and V. I. Khmelevskii. *J. Applied Chem.* (U. S. S. R.) 10, 759-64 (in German 760) (1937).—Reflux sample (1.0 g.), contg. anthracene, with maleic anhydride (0.5 g.) and xylene (5 cc.) in a flask provided with an air condenser for 25 min. Cool, add 80 cc. of water and dist. off xylene with steam. Titrate the residual soln. with 0.5 *N* KOH in the presence of phenolphthalein. The percentage of anthracene is [(*A* − 0.87328(*T*)/*B*] 181.7, where *A* is the wt. of maleic anhydride, *B* that of sample, *C* cc. of KOH used, *T* titer of KOH. The accuracy of the method is ±0.5%, duration 1-1.5 hr. Six references. A. A. Podgorny

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CA

7

A rapid analysis of crude and of enriched anthracene. I. Yac. Postovskii and V. I. Khmelevskii. *Trudy Ural. Ind. Inst. im. S. M. Kirova* 1938, No. 6, 64-9; *Khim. Referat. Zhur.* 2, No. 2, 85(1939).—The method is based on the addn. of maleic anhydride to anthracene. The compd. formed can be detd. either directly by the gravimetric method or indirectly by the volumetric titration of uncombined maleic anhydride. To 1 g. of the crude anthracene add 0.5 g. of maleic anhydride and 5 cc. of xylene, boil for 25 min., add 80 cc. of water, remove the xylene with steam, cool the maleic acid (formed at the expense of the emulsification of the excess anhydride), and titrate with a 0.5 *N* soln. of KOH in the presence of phenolphthalein. The method was tested with artificial mixts. of anthracene with carbazole, phenanthrene, fluorene, acenaphthene and β-methylanthracene. Of these substances only β-methylanthracene reacts with maleic anhydride. Therefore, in case β-methylanthracene is present a parallel detn. by the method of Sielisch should be made. The analysis takes 1-1.5 hrs., and its accuracy is ± 0.5%.

W. R. Henn

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POSTOVSKIJ, I. J.

"Recherches dans la serie de la phenazine. Communication II." Pouchkarova, Z. V., Postovskij, I. J. (p. 163)

SO: Journal of General Chemistry (Zhurnal Obschei Khimii) 1938, Volume 8, No. 2

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B-II-1

Determination of anthracene in crude anthracene. I. J. Postovskii and V. I. Chmielevskii (J. Appl. Chem. Russ., 1936, 11, 182).—A claim for priority (cf. Kaufmann et al.; B., 1937, 342).

R. T.

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structure and the pharmacological action of substances containing the sulfonamido group. I. The preparation of sulfonamides of aniline, α-naphthylamine and o-, m- and p-toluidines. The preparation of some azo dyes containing the sulfonamide group. L. N. Goldyrev and I. Ya. Postovskii. *J. Applied Chem.* (U. S. S. R.) 11, 316-27(1938). One mol. of PhNHAc or α-$C_{10}H_7NHAc$ or o-, m-, or p-MeC_6H_4NHAc and 3 mols. of $HOSO_2Cl$ were heated on a water bath at 80°; after treatment with ice water, the products were recrystd. from C_6H_6 or PhMe, yielding the following chlorides RSO_2Cl (figures following m. p. are yields in %): R = p-$AcNHC_6H_4$ (**XVII-Cl**), m. 170°, 31; 140°, 40; 1,4-$AcNHC_{10}H_6$ (**XVIII-Cl**), m. 142°, 51; 2,4-Me-4,3-Me(AcNH)C_6H_3 (**XXI-Cl**), m. 98°, 31; and 5,2-Me(AcNH)-C_6H_3 (**XIX-Cl**), m. 126°, 48. A better result was obtained by treating Na acetsulfanilate (1 mol.) with 7-8 mols. of $HOSO_2Cl$ while heating to boiling for 5-10 min., and pouring the reaction mixt. on ice; the ppt., formed (**XVII-Cl**) amounting to 60%, can be used for the prepn. of the sulfonamide without recrystg. **XVII-Cl**, **XXI-Cl**, **XX-Cl** and **XIX-Cl** treated with an excess of concd. NH_4OH and allowed to ppt. for 12 hrs. (finally with slight warming) yielded the sulfonamides, RSO_2NH_2 which were filtered out, washed with water and recrystd. from water or alc., yielding: p-$AcNHC_6H_4SO_2NH_2$ (**XVII-IV**), m. 212°, 98; 4,3-Me(AcNH)C_6H_3 (**XXI-IV**), m. 202°, 89; and 5,2-2,4-Me(AcNH)C_6H_3 (**XX-IV**), m. 230°, 88%. **XVIII-Cl** was Me(AcNH)C_6H_3 (**XIX-IV**), m. 230°, 88%. **XVIII-Cl** was dissolved in $CHCl_3$ and treated with NH_3 while cooling, until a complete pptn. The ppt. was recrystd. from PhMe yielding 47% of 1,4-$AcNHC_{10}H_6SO_2NH_2$ (**XVIII-IV**), m. 247°. **XVII-Cl** and **XVIII-Cl** were treated with an excess of 50% piperidine soln. at room temp. (for **XVII-Cl** a slight warming is recommended) for 12 hrs. yielding p-$AcNHC_6H_4SO_2NC_5H_{10}$ (**XVII-V**), m. 150°, 80%, and 1,4-$AcNHC_{10}H_6SO_2NC_5H_{10}$ (**XVIII-V**), m. 165°, 87%. $PhCH_2NH_2$ in $CHCl_3$ was added to a suspension of **XVII-Cl**, and after heating on a water bath for 4 hrs., the ppt. was filtered out and recrystd. from water and alc., yielding 30% of p-$AcNHC_6H_4SO_2NHCH_2Ph$ (**XVII-VI**), m. 149°. α-Aminopyridine in $CHCl_3$ was added to a suspension of **XVII-Cl** in $CHCl_3$ in small portions and the mixt. was heated on a water bath for 6 hrs. The solvent was distd. off, the viscous mass was washed with C_6H_6 to remove unreacted aminopyridine and dissolved in warm alc. After cooling (12 hrs.) the ppt. was filtered out and recrystd. from water, yielding 27% of p-AcNH-$C_6H_4SO_2NHC_5H_4N$ (**XVII-VII**), m. 198°. During the evapn. of the alc. filtrate, sapon. of **XVII-VII** was observed, with formation of EtOAc and 14% of $AcOH.NH_3$-$C_6H_4SO_2NHC_5H_4N$ (**XVII-VII'**), which was slightly sol. in alc. **XVII-IV**, **XVII-V**, **XVII-VI**, **XIX-IV**, **XX-IV** and **XXI-IV** were dissolved in 4 parts of HCl (d. 1.08) while warming on a water bath for 1-2 hrs., whereas **XVIII-IV** was dissolved in 18 parts of the same acid and heated on an oil bath at 130-40° for 2 hrs. After cooling, the ppts. were filtered and recrystd. from water (in the case of **XVIII-IV** from alc.), yielding HCl salts of aminosulfonamides in yields of 85, 72, 92, 88, 84, 90 and (for **XVIII-IV**) 98% (m. 236°, 181°, 225°, 231°, 233°, 243° and (for **XVIII-IV**) 255°), resp. **XVIII-V** treated under the same

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conditions as **XVIII-IV**, yielded 88% of 1,4-$NH_2C_6H_4$-$SO_2NC_6H_{10}$ (**IX**), m. 141°. The HCl salts treated with the calcd. amts. of Na_2CO_3 soln. (with slight warming) yielded: *p*-$NH_2C_6H_4SO_2NH_2$ (**IV**), m. 163°, 90%; *p*-$NH_2C_6H_4SO_2NC_6H_{10}$ (**V**), m. 165°, 93%; *p*-$NH_2C_6H_4SO_2NHCH_2Ph$ (**VI**), m. 107°, 90%; 5,2-$Me(H_2N)C_6H_3SO_2NH_2$ (**X**), m. 165°, 96%; 2,4-$Me(H_2N)C_6H_3SO_2NH_2$ (**XI**), m. 168°, 84%; 4,3-$Me(H_2N)C_6H_3SO_2NH_2$ (**XII**), m. 176°, 90%; and 1,4-$NH_2C_6H_4SO_2NH_2$ (**VIII**), m. 212°, 89%. The azo dyes were prepd. by diazotizing the HCl salts of **IV**, **V**, **VI**, **VIII**, **X**, **XI** and **XII** and **XVII-VII**[1] in the usual manner and combining with *m*-$NH_2C_6H_4NH_2$ in acid soln., and those of **IV** and **V** also with the J-acid (2,5,7-$H_2N(HO)C_{10}H_4$-SO_3H) in an alk. soln., yielding the corresponding azo dyes (% yield of dyes as tabulated in the paper, form, m. p. and color, resp., are given below): 63 (**I**, HCl salt, 240°, red); 20 (**XXIII**, HCl salt, 245°, dark red); 17 (**XXIV**, HCl salt, 195°, red); 70 (**XXVI**, free base, 237°, dark red); 55 and 82 (**XXVII**, HCl salt, 210°, and free base, 178°, both dark brown); 32 and 85 (**XXVIII**, HCl salt, 224°, red, and free base, 200°, yellowish red); 50 and 91 (**XXIX**, HCl salt, 201°, orange, and free base, 190°, yellow); 58 (**XXV**, free base, red); 51 (**XXX**, Na salt, dark red); and 50 (**XXXI**, Na salt, dark red), resp. The prepn. of azo dyes contg. $-SO_2NH_2$ group was also carried out as follows: 1 mol. of methyl orange or β-naphthol orange was treated with 15-20 mols. of $HOSO_2Cl$ while cooling, for 12 hrs. In the 1st case the resulting mixt. was poured directly on an ice and in the 2nd case it was heated on a water bath at 60-80° for 1 hr. and left overnight and, then poured on an ice, yielding the corresponding sulfonylchloride (insol. in C_6H_6, PhMe, malonic ester, $PhNO_2$) in the theoretical amts., m. 150-5° and 185°, resp. The chlorides formed were treated, then, with a concd. NH_4OH, while heating to boiling for 20-30 min. The ppts. were filtered out and recrystd., the 1st from MeOPh and the latter from $PhNO_2$, yielding sulfonamide in 50% (**XXXII**, 257-8°) and 40% (**XXXIII**, 277°) yield. The work is being continued. Thirteen literature and 5 patent references. A. A. Podgorny

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3RD AND 4TH ORDERS

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Ca

New methods for the preparation of the red hydrocarbon rubicene. V. I. Khmelevskii and I. Ya. Postovskii. *J. Gen. Chem.* (U. S. S. R.) 9, 620-4(1939).—Rubicene, blood-red needles, m. 306°, is prepd. either by heating 2 g. fluorenone with 0.4 g. Mg turnings for about 1 hr. at the boiling temp. (11% yield) or by heating a mixt. of 2 g. *ms*-diphenyl-*ms*-dihydrodihydroxyanthracene (prepd. from anthraquinone), 5 g. $AlCl_3$ and 2 g. MnO_2, with vigorous agitation, at 100° for 30 min. (4% yield).
John Livak

COMMON ELEMENTS

OPEN

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POSTOVSKIY, I. YA.

"Chemistry of Carcinogen Compounds" Part I. "The Synthesis of 9-Azacholanthrene and Several Meso-Alkylated 1,2-and 3,4-Benzacridines" Zhur. Obshch. Khim., 10, No. 1, 1940. Laboratory of Organic Chemistry of the Ural Industrial Institute imeni S. M. Kirov Received 3 August 1939.

Report U-1526, 24 Oct 51.

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Preparation and properties of α- and β-naphthylglyoxals. L. N. Goldyrev and I. Ya. Postovskii. *J. Gen. Chem.* (U. S. S. R.) 10, 39-42(1940).—Boiling 2 g. α-$C_{10}H_7$-COMe in 5 ml. of 80% AcOH with 1.3 g. SeO_2 for 1 hr., pouring the filtered reaction mixt. into 1 l. of boiling water and refluxing 5-10 min. pptd. 50% of monohydrate of *α-naphthylglyoxal*, $C_{10}H_7(O)CHO$ (I), m. 82°. It is dehydrated at 80° over P_2O_5 to an intense yellow oil. It reacts with $PhNHNH_2$ in glacial AcOH to give the *osazone*, orange-yellow needles, m. 105°. With o-$C_6H_4(NH_2)_2$ in alc. I forms a *quinoxaline deriv.*, white prisms, m. 114°. In a similar reaction β-$C_{10}H_7COMe$, m. 52°, gives 78% *β-naphthylglyoxal monohydrate*, needles, m. 110°. It gives an *osazone*, yellow, m. 184°; the *quinoxaline deriv.* m. 137°, and on heating 1 hr. in 12.5% NH_4OH and CH_2O with $(AcO)_2Cu$ and decompn. with H_2S it gives 50-55% *4-(2-naphthyl)imidazole*, m. 168°. The glyoxals on heating with o-aminopyridine give a dark green oil; this in alc. forms an intense emerald-green soln. with bright yellow fluorescence, which with acids gives a cherry-violet reaction. α-I is characterized by a fruity odor resembling that of muskmelon, and the β-isomer by a lily-of-the-valley odor.

Chas. Blanc

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Theory of the formation of anthracite coal and of petroleum. I. Ya. Postovskii. *Soviet Geol.* 1941, No. 1, 133-7.—The views of Karpukhin (*C. A.* 35, 4568[9]) on the catastrophic origin of coal and oil deposits are criticized as not in conformity with known geol., geo- and physicochem. and paleobotanical facts. F. H. Rathmann

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PROCESSES AND PROPERTIES INDEX

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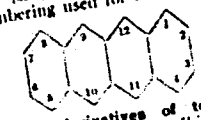
Ca

Chemistry of tetracene (naphthacene). I. Dihydroxytetracenequinone and diarylaminotetracenequinone isomers. I. Ya. Postovskii and L. N. Goldyrev. *J. Gen. Chem.* (U. S. S. R.) 11, 429-45(1941).—The study of 9,10-dihydroxy-11,12-tetracenequinone was undertaken with the idea of prepg. an analog of an acid dye, alizarincyanine green. *9-Hydroxy-11,12-tetracenequinone* (I). The *o*-(1-hydroxy-2-naphthoyl)benzoic acid necessary for the synthesis of I was prepd. by the method of Deichler and Weizmann (*Ber.* 36, 719(1903); Ger. pat. 138,324 (Frdl. VII, 240)). Cyclization of the acid to I was carried out with concd. H_2SO_4 and H_3BO_3 at 120-40°, crystals, m. 300-3°; yield 80-90%. *9,10-Dihydroxy-11,12-tetracenequinone* (II), obtained in 90.0% yield from a mixt. of 10 g. I, 30 g. KOH, 3 g. $KClO_3$ and 5 ml. H_2O heated 30 min. at 300-10°, cooled, dissolved in H_2O, and pptd. by HCl, crystals from $PhNO_2$, m. 344-6°. *Mixt. of dianilinotetracenequinone isomers* (III), obtained in 2.85-g. yield by dissolving 2 g. II in 30 ml. of freshly distd. $PhNH_2$, adding to the warm soln. 2 g. H_3BO_3, heating on an oil bath 4 hrs. at 200-10°, m. 200-10°. Violet isomer, crystals, m. 244-6°. Blue isomer, m. 310-12°. Hydrolysis of either isomer (0.1 g. isomer, 1 ml. concd. HCl) produces II. The violet isomer and violet compd. prepd. from the dichlorotetracenequinone of Gabriel and Leupold (*Ber.* 31, 1282(1898)), are identical. *p,p'-Ditoluidinotetracenequinone isomers*, obtained from *p*-toluidine and II by the same method as used in prepn. of the dianilino derivs.; blue isomer, obtained in 20-5% yield, crystals, m. 294-6°; violet isomer, obtained in 10-12% yield, crystals, m. 242-4°; a green isomer also appears and may be sepd. by adsorption on Al_2O_3. *9,11-Dichloro-10,12-tetracenequinone*, obtained in 75.0% yield from 0.2 g. *ana*-tetracenequinone and 0.5 ml. SO_2Cl_2, heated 2 hrs. at 130-5°, in a sealed glass tube, crystals from cold AcOH, m. 251-2°. The acid dyes of III were prepd. by sulfonation of the isomers in the presence of H_3BO_3 (0.2 g. of isomer, 2 ml. concd. H_2SO_4, 0.2 g. H_3BO_3); violet salt, 0.2-g. yield; blue salt, 0.15-g. yield. The numbering used for tetracene is given below.



II. *ana*-**Quinonoid derivatives of tetracene.** L. N. Goldyrev and I. Ya. Postovskii. *Ibid.* 451-8(1941).—The problem was to determine to what extent the *ana*-quinonoid form was a property of tetracenequinone derivs. and also if tautomerism is a characteristic of dihydroxytetracenequinone. A study of monoanilinohydroxytetracenequinone was undertaken. *9-Hydroxy-10-bromo-11,12-tetracenequinone* (I), obtained in 70.0% yield by adding 5 g. Br in 5 ml. $PhNO_2$ to 8 g. 9-hydroxy-11,12-tetracenequinone and heating the mixt. 3 hrs. at 160-5°, crystals from C_6H_6, m. 271-2°. I, transformed to dihydroxytetracenequinone by heating 1 part I and 5 parts KOH at 250°, crystals from $PhNO_2$, m. 344-6°; 75.0% yield. This compd. may also be prepd. with H_2SO_4 and H_3BO_3; yield 85.0%. *9-Hydroxy-10-anilino-11,12-tetracenequinone* (II), obtained in 60.0% yield by heating for 5 hrs. 1

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part I, 3 parts $PhNH_2$ and 0.7 parts AcONa at 170-80°, crystals from AcOH, m. 243-5°. *A mixt. of diamino-tetracenequinone isomers* was obtained by dissolving 1 part II in 15 parts $PhNH_2$ and 1 part H_3BO_3, heating 1 hr. at 200-10°, dissolving the product in C_6H_6 and adsorbing it on Al_2O_3. The isomers obtained had the correct m. pts. *9-Chlorotetracenequinone*, obtained in 40.0% yield by dissolving 0.5 g. 9-hydroxytetracenequinone in 4 ml. $PhNO_2$, adding 0.38 g. PCl_5 at 45-50° and heating the mixt. on an oil bath for 3 hrs. at 180-90°, crystals, m. 252-4°. *9,11-Dichloro-10,12-tetracenequinone*, obtained in 50.0% yield by dissolving 1 g. 9-hydroxytetracenequinone in 7.5 ml. $PhNO_2$, adding 1.5 g. PCl_5 at 50° and heating the mixt. on an oil bath for 7 hrs. at 210-20°, crystals, m. 251-2°. From the filtrate addnl. crystals were obtained in 30.0% yield, m. 251-2°. Tetracene was obtained in 45.0% yield from 1 g. 9-hydroxytetracenequinone, 10 g. $ZnCl_2$, 2 g. Zn dust and 2 g. NaCl heated in a glass retort 20 min. at 280-310°. The product was purified by distg. from an equal vol. by wt. of PbO, crystals, m. 342-4°. *9,11-Dichlorotetracene* was obtained in 80.0% yield by heating in a sealed glass tube 0.2 g. tetracene and 1 ml. SO_2Cl_2 2 hrs. at 140-50°. The product of the reaction was washed with alc., dried and heated for 30 min. with 20 ml. concd. H_2SO_4, crystals, m. 248-50°. *9,11-Dichloro-10,12-tetracenequinone*, obtained in 70.0% yield from 0.2 g. 9,11-dichlorotetracene heated in 30 ml. AcOH until dissolved, treated hot with 0.15 g. CrO_3 in 10 ml. AcOH and heated on a water bath for 30 min.; crystals, m. 250-2°.

Boris L. Rodzianko

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POSTOVSKIJ, I. J.

"Sur la chimie du tetracene (naphtecene). II Sur l'etat ana-quinoidique des derives du tetracene." by Goldirev, L. N. and Postovskij, I. J. (p 451)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1941, Vol 11, no 1.

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Chemistry of polynuclear hydrocarbons. XI. *ms*-Dichloro- and *ms*-dibromonaphthacene. I. Ya. Postovskii and R. G. Belles. *J. Gen. Chem.* (U. S. S. R.) 13, 823-9(1943)(English summary); cf. *C. A.* 38, 1220°.—Naphthacene (1 g.) in 20 cc. tetrachlorethane, at −15°, was treated with a slow stream of Cl for 5 min. until soln. occurred, after which the Cl excess was removed by an air stream; as the solvent evapd. fine needles of *naphthacene tetrachloride* appeared in 46% yield, decomp. 259-5°; in soln, or upon heating it readily loses HCl to yield *ms-dichloronaphthacene*, red crystals, m. 288-1°, which, exposed to light in benzene, fades to a yellow color and deposits yellow crystals, m. 230-5° and on distn. in dry state regenerate the red di-Cl compd. Low-temp. bromination of naphthacene in tetrachloroethane yields analogously *9,10-dibromonaphthacene*, red needles, m. 228-5°, which can be crystd. from dichloroethane and m. 281-9°. Both the di-Cl and the di-Br derivs. treated with alc. KOH at 150-60° yield, besides small amts. of naphthacene, 14-24% *9,10-naphthacenequinone*, m. 284-5° (from AcOH). The red dichloronaphthacene gives on oxidation with Cr oxide in AcOH *9-chloronaphthacene-10,11-quinone*, m. 255-6° (30%) (from pyridine). G. M. Kosolapoff

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Ca

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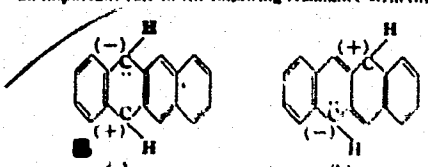
The chemistry of naphthacene. *meso-Dichloronaphthacene.* I. J. Postovskii and R. G. Boyles. *Compt. rend. acad. sci. U. R. S. S.*, 39, 102-5(1943).—To explain the peculiar reactions of naphthacene (I), P. and B. attribute an important role to the following resonance structures:



(a) (b)

in which the *meso*-C atoms have the character of free radicals, with structure (b) being comparatively stable at the expense of complete symmetry and of a continuous conjugation of bonds. I in tetrachloroethane, treated with Cl at −15°, yields 46% of a colorless addn. product, decomp. 201-5°, which easily splits off HCl to give 60% 9,10-dichloronaphthacene (II), dark red, m. 220-1°. The 9,10-di-Br compd. (III), dark red, m. 223-5°, is similarly obtained in 52% yields. I and 9,10-naphthacenequinone, m. 282-3°, are obtained by heating II and III at 150-60° in sealed tubes with alc. alkali. II upon treatment with CrO_3 in glacial AcOH yields 9-chloro-10,12-naphthacenequinone, m. 260-80°, which is also obtained by chlorinating 9,11-naphthacenequinone (IV) with SO_2Cl_2. The absorption spectra of II, III and IV are reported.

Adrien S. DuBois

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PROCESSES AND PROPERTIES INDEX

Sulfanilamide compounds and their influence on the mitogenetic radiation of blood. I. Ya. Postovskii, A. I. Yudelea, and T. I. Kazantseva. *Compt. rend. acad. sci. U.R.S.S.* 40, 106–9(1943).—A yeast culture 9–11 hrs. old, in the form of a thin film on the surface of an agar block, was exposed for 5 min. to blood contg. 1:2000 dilns. of several sulfonamide compds. The increase in the no. of buds calcd. permitted an estn. of the intensity of mitogenetic radiation of blood. Sulfanilamide, sulfapyridine, and sulfathiazole produced an extinction of luminescence in the short-wave ultraviolet, as expressed in a distinct decrease in the no. of yeast cells. 2-Methylsulfanilamide and N^4-acetylsulfanilamide did not exert this depressive action. The addn. of 1:100,000 of *p*-aminobenzoic acid to a 1:2000 soln. of sulfanilamide annulled the depressing effect of the latter with respect to the mitogenetic radiation of blood; the intensity of the radiation then surpassed that of the rays of the same blood in the control tests. The isomeric *o*- and *m*-aminobenzoic acids did not restore the mitogenetic radiation of blood suppressed by sulfonamide compds. When 5 cc. of 1:10^9 or 1:10^8 soln. of *p*-aminobenzoic acid was added to 5 cc. of 1:2000 soln. of sulfanilamide, intense mitogenetic radiation was observed immediately.

Maurice M. Rath

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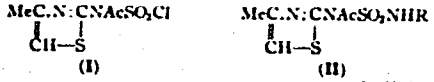
Amino sulfonamide compounds of the thiazole series. I. Ya. Postovskii and T. S. Belaya. *Compt. rend. acad. sci. U. R. S. S.* 40, 326-8(1943)(in English).—Attempts at prepg. 2-acetamido-4-methyl-5-thiazolesulfonyl chloride by treating 2-acetamido-4-methylthiazole with excess HSO_3Cl resulted in formation of *N*-acetyl-4-methyl-2-thiazolesulfamyl chloride (I), m. 136-7°. Reaction of I with various bases in excess pyridine yielded the corresponding acetyl sulfamamides (65-80% yields), which were deacetylated to give the sulfamamides (II) in 60-80% yields. II (R = H) m. 168-9°, highly active against staphylococci *in vitro*, *Ac deriv.* m. 225-6°; II (R = Ph) m. 139-40° (activity not given), *Ac deriv.* m. 197-8°; II (R = 2-pyridyl) m. 209-10°, no activity, *Ac deriv.* m. 225-6°; II (R = 2-thiazolyl) m. 215-16°, no activity, *Ac deriv.* m. 236-7°. 4-Methyl-2-thiazolesulfamic acid was active against staphylococci, but less so than its amide.

Lab. Org. Chem., Weals Ind. Inst. in Kiev



(I) (II)

L. Kuhn

Thiomesitaldehyde. Reynold C. Fuson and Chris E. Best. *J. Am. Chem. Soc.* 67, 155(1945).—Mesitaldehyde (24 g.) in 250 ml. abs. EtOH, satd. with dry HCl and treated with HCl and H_2S for 2 hrs. at 0-5°, gives 8.5 g. of *thiomesitaldehyde* (I) (as the trimer), m. 186-7°. I (1.64 g.), heated with 1.4 g. Cu bronze at 230-30° for 30 min., gives 0.55 g. of 1,2-dimesitylethylene. C. J. West

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Pharmacological assay of the anesthetic power of 2-amino-4-methyl-5-carbethoxythiazole. N. I. Efimov and I. Ya. Postovskii. *Farmakol. i Toksikol.* 7, No. 2, 57-61 (1944).—Since 2-amino-4-methyl-5-carbethoxythiazole is an effective anesthetic and is less toxic than procaine, the thiazole analogs of various *p*-aminobenzoate esters should be assayed for anesthetic and toxic properties.

Julian F. Smith

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Phenothiazine. I. Ya. Postovskii. *Farmatsiya* 7, No. 4, 28–33(1944).—A review. Sonya G. Machelson.

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Amino sulfonamide compounds of the thiazole series. I. Ya. Postovskii and T. S. Belaya. *J. Gen. Chem.* (U.S.S.R.) 14, 350-8(1944)(English summary).—See *C.A.* 39, 1151[8]. G. M. Kosolapoff

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Preparation of 2-aminothiazole and sulfathiazole. I. Ya. Postovskii, V. I. Khmelevskii and N. P. Bedunyagina. *J. Applied Chem.* (U.S.S.R.) 17, 65-75(1944)(English summary).—The following exptl. procedure was devised for the prepn. of sulfathiazole. Com. Et_2O was chlorinated with gentle refluxing and illumination by ultraviolet ray lamps to yield crude $(ClCH_2CH_2)_2O$ (d. 1.12-1.14); 830 g. of this was mixed with 235 g. $(H_2N)_2CS$ in 2 vols. H_2O at 25-30°, after which the mixt. was stirred for 1 hr. at 80-5°, treated with charcoal, filtered, and the free base liberated by 40% NaOH; after treatment with dil. $NaHSO_4$ and crystn. from benzene there was obtained 67-84% *2-aminothiazole* (I), m. 87-9°. EtOH was chlorinated in a battery of 6 countercurrent columns connected in series, with cooling (no temps. given); the final product contained 12-15% of chlorinated matter (assumed to be $ClCH_2CHO$). This mixt. (21.) was mixed with 260 g. $(H_2N)_2CS$ in 500 cc. water and refluxed for 2 hrs., after which the EtOH was distd. off and the residue treated with 40% NaOH to yield 70-80% (on thiourea) I, m. 87-9° (from benzene). $MeCH(OEt)_2$ (355 g.) was chlorinated at 47-50° (with cooling) for 5-9 hrs. to yield crude *2-chloroacetal*, d. 1.11; this was added to 228 g. $(H_2N)_2CS$ in 450 cc. water at 40° and refluxed for 2 hrs. to yield 80% (on thiourea) I. Vinyl iso-Am ether (250 g.) was chlorinated at 45-50° to yield *1,2-dichloroethyl isoamyl ether*, d. 1.01, 300 g.; this was condensed with 120 g. $(H_2N)_2CS$ as above to yield 72% I. Similarly, the chlorinated vinyl Bu ether yielded 80% I. The base was condensed in pyridine with $AcNHC_6H_4SO_2Cl$ to yield 70% acetylsulfathiazole, m. 250-5°, which was heated for 1 hr. at 90-5° with 12% NaOH (3 mols. NaOH per 1 mol. of Ac compd.), contg. an equal amt. of NaCl to inhibit the amide group hydrolysis; 15 min. before the end of the hydrolysis, the mixt. was treated with 2% activated charcoal and 1% $NaHSO_4$, the mixt., after completion of hydrolysis, being cooled to 5-6° and let stand for several hrs. to yield the *hexahydrate of the Na salt of sulfathiazole*, which was washed with a little NaCl soln. and crystd. from a small amt. of water; yield, 50% on aminothiazole. The product m. 54°, and after dehydration remelts at 250-4°. Free *sulfathiazole* was obtained from the aq. soln. of the Na salt by addn. of 80% AcOH or CO_2, the latter procedure giving a very pure product, m. 201-2°. The latter heated with the calcd. amt. of 15% NaOH and cooled to 0° gave 90% of the above Na salt hexahydrate.

G. M. Kosolapoff

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Br. Abs.

AT-5 Solutions, dispersions, & Mixtures

Solubility of certain sulphonamides in water and aqueous alcohol. N. V. Sapozhnikova and I. J. Pustovski (*J. Appl. Chem. Russ.*, 1944, 17, 427—434).—The solubilities of sulphanilamide, N^4-acetylsulphanilamide, N^1-sulphanilacetamide, sulphaguanidine, N^4-acetylsulphaguanidine, sulphamethylthiazole, N^4-acetylsulphamethylthiazole, sulphathiazole, sulphamethyldiazine, and N^4-acetylsulphamethyldiazine in H_2O at 20°, 37°, 50°, 75°, and 99° are tabulated and the heats of dissolution calc. Whilst sulphanilamide and its N-alkyl derivatives are easily sol., those with heterocyclic substituents are much less sol. The Ac derivatives are much less sol. than the parent compounds. The heats of dissolution range from 9900 to 10,660 g.-cal. per mol. In aq. EtOH solution sulphanilamide, sulphapyridine, sulphaguanidine, and N^1-acetylsulphaguanidine show a max. solubility at ~70% EtOH. R. To.

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Method of investigation and analysis of compounds of crude anthracene and other high-boiling fractions of coal tar. V. I. Khmelevskii and I. Ya. Postovskii. *J. Applied Chem.* (U.S.S.R.) 17, 363-70(1944)(English summary).—The authors present rapid quant. methods for detn. of a no. of polycyclic compds. in coal tar. Anthracene is detd. by condensation with maleic anhydride; phenanthrene, by oxidation to the quinone, followed by condensation with o-$(NH_2)_2C_6H_4$; carbazole, by reaction with HNO_3; and acridine, by its addn. compd. with $NaHSO_3$.

G. M. Kosolapoff

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B-1-2

Sulphur compounds in petroleum. I. I. [illegible], N. P. [illegible], and M. A. [illegible] (Compt. rend. Acad. Sci. U.R.S.S., 1944, [illegible]).—When S-containing petroleums from the Urals are subjected to chromatography ([illegible]; ultra-violet illumination), no thiophen (I) derivative was detected in any band. It is deduced that (I) derivatives are formed only during distillation, and probably by disintegration of complex S compounds and not by synthesis.

A. T. P.

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The S compounds of petroleum. I. Ya. Postovskii, N. P. Bednyagina and M. A. Mikhaflova.—*Doklady Akad. Nauk S.S.S.R.* 44, 403-6(1944).—Thiophene compds. (I) are not naturally occurring components of Ural petroleums, but are formed during distn. This was established by first pptg. asphaltenes by addn. of petr. ether and subjecting the petr. ether soln. to chromatographic analysis with silica gel. Ultraviolet light distinguished an upper black-brown nonfluorescent, a middle greenish yellow fluorescent, and a lower blue-violet fluorescent zone. The upper zone contained a "tar" removable by Soxhlet extn. with benzene. The lower and middle zones were elutriated with petr. ether and benzene, resp., to isolate "light" and "heavy grease" after distg. off the solvents under reduced pressure. None of the 3 chromatographic fractions gave a pos. test for I. However, a pos. test was obtained after distg. (temp. 125° to 250°) the "greases." The test for I remained neg. after subjecting the "tar" and asphaltene to thermal decompn. It seems probable that I in petroleum distillates was formed by decompn. of complex S-contg. compds. found in crude petroleum. Partial elutriation with petr. ether of "greases" adsorbed on silica gel sepd. them into 2 fractions. The fraction more easily removed from the silica gel formed I on heating, while the other fraction, although it contained 8.5% S, did not form I. The petroleum components convertible to I on heating may have been formed by reaction of porphyrins with H_2S in the course of geological time. *Cf. C.A.* 30, 4853°. J. W. Perry

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2-Aminothiazole. V. I. Klimchevskii, I. Ya. Postovskii, and N. P. Bednyagina. U.S.S.R. 64,732, May 31, 1945. Vinyl ethers are chlorinated at 15-70°. The chlorination product without being sepd. is condensed with thiourea, and from the condensation product 2-aminothiazole is sepd. either as a base or as a HCl salt.

M. Hosch

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Determining antisulfanilamide factors in blood. A. L. Yudeles, I. Ya. Postovskii, and T. I. Kazantseva. *Compt. rend. acad. sci. U.R.S.S.* 46, 42-4; *Doklady Akad. Nauk S.S.S.R.* 46, 45-8(1945).—The hypothesis is advanced that qual. changes in the metabolism of proteins give rise to factors in the blood which inhibit the effect of sulfanilamide compds. as does *p*-aminobenzoic acid. To test this hypothesis, use was made of the inhibitory effect produced by sulfanilamide on the mitogenetic radiation of blood and its restitution by inhibitors. The intensity of mitogenetic radiation was detd. according to the method of A. Gurvich (*Mitogenic Radiation*, p. 239, 329 (1934)) by comparing the no. of gemmulating yeast cells subjected to the effect of the mitogenetic radiation of blood with that in the control without radiation. The increase in the cell no. is given in percentage of their initial no. and reflects the relative intensity of the radiation. The addn. of 0.025 mg. of peptone, the intermediate product of protein decompn., per ml. of blood restored to its full intensity the mitogenetic radiation lost by adding 0.5 mg. of sulfanilamide per ml. of blood. In healthy subjects the addn. of sulfanilamide to the blood produces an inhibition of mitogenetic radiation in 100% of the cases, but in 37 cases of subjects having alimentary dystrophy without complications, only 5 showed normal inhibition, in 16 cases the inhibition was extremely weak or totally absent, and in the remaining 16 cases the sulfanilamide actually stimulated mitogenetic radiation. Similar results were obtained with 12 cases of traumatic cachexia.

Jacquelyn Findlay

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POSTOVSKIY, I. YA.

"To the Question of Determining Antisulphanilamide Factors in Blood," Dok.AN, 46, No. 1, 1945. Inst. Ind. Hygiene and Professional Diseases; Ural Branch Ordzhonikidze All-Union Chem. &Pharmaceutical Inst. Sverdlovsk, c1944-.

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Sulfanilamide derivatives of benzoquinones. I. Ya. Postovskii and Z. V. Pushkareva. *J. Gen. Chem.* (U.S.S.R.) 16, 277-82(1946).—Benzoquinone (3.24 g.) in 20 vols. EtOH and 3.5 g. sulfanilamide in 10 parts boiling water were mixed and refluxed for 2 hrs.; after filtration of the hot mixt. there was obtained 2.8 g. brown crystals of *2,5-bis(4-sulfanylanilino)benzoquinone* (I), m. above 300°. The product is inactive against tuberculosis bacilli *in vitro*, although there is slight effect *in vivo*. The use of N^1-acetylsulfanilamide as above gave *2,5-bis(4-N¹-acetylsulfanylanilino)benzoquinone* (II), m. above 300°, which was inactive against tuberculosis bacilli *in vitro* and slightly active *in vivo*. Sulfanilamide (7 g.) in 20 parts hot water was mixed with 2.4 g. chloranil in 50 cc. hot EtOH and heated for 2 hrs. to give 84% *3,6-di-Cl deriv.* of I, brown-colored, m. above 300°. The use of N^1-acetylsulfanilamide gave the *3,6-di-Cl deriv.* of II, brown gray, m. above 300°. In mouse expts. it was shown that the compds. described inhibited tuberculosis bacilli to the lungs only, while in controls the bacilli were found throughout the body.

G. M. Kosolapoff

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Amino-imino tautomerism of sulfathiazole. N. P. Bednyagina and I. Ya. Postovskii (Ural Ind. Inst., Sverdlovsk). *J. Gen. Chem.* (U.S.S.R.) 16, 1941-8 (1946).—The effect of resonance in the sulfanilamide part of the mol. on the tautomerism in the thiazole moiety was investigated in the instance of replacement of the NH_2 group in the former by an electroneg. substituent such as NO_2 which, inasmuch as it will attract electrons from the benzene ring and induce a pos. charge on the para C atom, must hinder resonance between the SO_2 group and the ring, and thus displace the tautomerism equil. in the thiazole nucleus. Methylation of sulfathiazole (I) by the method of Shepherd, *et al.* (*C.A.* 37, 619[9]), gave 55% N^1-Me isomer and 45% ring-Me isomer (S. obtained a 70:30 ratio); similar methylation of the *p*-NO_2 analog gave 85% N^1-Me isomer and only 15% ring-Me isomer, showing that I contains a much higher proportion of the imino form than its NO_2 analog and demonstrating the shift of the tautomeric equil. I (2.55 g.) was treated with 100 cc. Et_2O soln. of CH_2N_2 (about 5-fold excess), after 3 hrs. at 15–20° the almost colorless soln. was refluxed 1 hr. and filtered, and the insol. portion washed with 2 *N* NaOH to give 22% *3-methyl-2-sulfanilamido-2,3-dihydrothiazole*, m. 246–7° (from 50% EtOH); the alk. washings yielded 1.2 g. unreacted I. The Et_2O mother liquor after evapn. and washing with a little Et_2O yielded 27% *N^1-methyl-2-sulfanilamidothiazole*, m. 110–11° (from 50% EtOH). 2-Aminothiazole (40 g.) in 100 cc. dry C_5H_5N, treated at 25–30° with 105 g. *p*-$O_2NC_6H_4SO_2Cl$, then stirred 3 hrs. at 80–90°, dild. with 200 cc. H_2O, filtered, washed with H_2O and 2% HCl, and dissolved in the calcd. amt. of hot 10% NaOH, gave on cooling 50 g. *2-(p-nitrophenylsulfonamido)thiazole-3H_2O*, yellow needles, changing at 105° to red plates of the anhyd. compd., which on heating to 130–40° again becomes yellow without loss of wt. Treatment of the trihydrate with AcOH gave the *anhyd. deriv.*, m. 258–60° (from AcOH). This (1.43 g.), methylated with a 5-fold excess of CH_2N_2 as above, by evapn. of the Et_2O filtrate yielded 0.9 g. (67%) *2-(N-methyl-p-nitrophenylsulfonamido)thiazole* (II), m. 111–15° (from 50% EtOH), and 0.15 g. (10%) *3-methyl-2-(p-nitrophenylsulfonamido)-2,3-dihydrothiazole* (III), m. 202–3° (from 50% EtOH); the alk. washing gave 0.3 g. (21%) unreacted starting material. II on hydrogenation with PtO_2 in EtOH gave N^1-methylsulfathiazole, m. 110–11° (from 50% EtOH), while III gave on similar treatment the ring-Me isomer, m. 246–7° (from 50% EtOH). G. M. K.

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Chemistry of hydroxyfuchsones. I. Eupittone and rubrophene. I. Ya. Postovskii and A. M. Eidlin (All Union Chem. Pharm. Research Inst., Sverdlovsk). *J. Gen. Chem.* (U.S.S.R.) 16, 2043-52(1946)(in Russian).—New syntheses of eupittone (3,3',3",5,5',5"-hexamethoxy-4,4'-dihydroxyfuchsone) (I) and rubrophene (3,3',3"-trimethoxy-4,4'-dihydroxyfuchsone) (II) are described. Both I and II *stimulate blood production* in guinea pigs (1.3 mg./kg.); a similar effect was produced by aurin. 2,6-Dimethoxyphenol (77 g.) was treated at 120-30° over 4 hrs. with Cl_3CCO_2K (from 63 g. Cl_3CCO_2H and the calcd. amt. of 25% KOH). After cooling, the mixt. was acidified with 10% HCl, distd. with steam, and the oil layer sepd. This solidified rapidly, and with 2 vols. EtOH (with heating) yielded as a residue 20% insol. leucoeupittone, a light orange powder, m. 107-8° (from EtOH). A small addnl. amt. is obtained from the aq. soln. on cooling; Ac deriv. (with Ac_2O) m. 235-7° (from EtOH). To 22 g. leucoeupittone in 3 vols. EtOAc with 20 cc. EtOAc which had been treated with dry HCl was slowly added 13 cc. AmONO to give, on standing several hrs., 22 g. green-black crystals of *eupittone-HCl*, m. 243-5°. I in hot AcOH treated with dry HCl yields almost black cubes of I.*HCl.AcOH*, m. 203-5°; this is similar to the crystn. of many other hydroxyfuchsone-HCl salts with a mol. of AcOH. I.*HCl* (10 g.) 6 hrs. in 100 cc. H_2O yielded a dark brown powder of I (8.3 g.), m. 267-70°; boiling this crude product 20-30 min. gave a residue of 6 g. pure I, light orange, m. 280-3°. I.HCl (10 g.) with 200 cc. 5% NaOH gave a suspension of the blue Na salt, which crystallizes on standing; soln. of this in H_2O and acidification with AcOH gave I; analytically pure I was isolated by extn. with hot EtOH, when it formed, on cooling, red-orange needle bundles. Freshly distd. guaiacol (62 g.) and 21 g. Cl_3CCO_2H, treated with 150 cc. 25% KOH, heated to 120-30° 6 hrs., then, after acidification with 10% HCl, distd. with steam, gave 25 g. rapidly solidifying oil; the crude oil was stirred with 3 vols. $CHCl_3$, when all went into soln.; then *leuco*-II.*CHCl₃* pptd., pink, m. 113-15° (12 g.), m. 125-6° (recrystd. from $CHCl_3$), colorless. After boiling with H_2O and crystn. from AcOH it yields *leuco*-II.*AcOH*, m. 106-8°. The leuco deriv. is light-sensitive. Oxidation by AmONO.HCl, as above, gave II.*HCl* in 23% yield (based on guaiacol used), m. 216-18°, which on treatment with aq. NaOAc gave II, m. 235-40° (crude), m. 248-50° (from EtOH), deep red. II. **Cleavage of hydroxyfuchsones.** *Ibid.* 2053-64.—Since I and II have been reported as having some tuberculostatic properties, the possibility of such activity residing in fragments of I and II prompted the study of the cleavage

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of these fuchsones under a variety of conditions. Aurin (III) was also included in the study. III heated in a sealed tube with H_2O 6 hrs. at 230–50° readily cleaves into PhOH and $(p\text{-}HOC_6H_4)_2CO$. II was essentially unchanged in this treatment. Shaking I, II, or III (0.07 mole) in 50 cc. 5% NaOH under about 300 mm. pressure of O and detg. the utilized O gave O utilization curves which are presented. III is essentially completely cleaved (same products as above) in 12 hrs.; II requires 15 hrs., while I is unchanged in 15 hrs. Similar oxidation of benzoquinone, toluquinone, and methoxyquinone led to completion of the reaction within 2 hrs.; PhOH was unchanged in 5 hrs. Aeration of I, II, and III in 5% NaOH gave the following results: III completed in 10 hrs. in the cold, 1 hr. at 100°; II in 40 hrs. and 2.2 hrs., resp.; I unchanged in 3 days in the cold, oxidized in 24 hrs. at 100°. III after such treatment gave on acidification with AcOH 80% *4,4'-dihydroxybenzophenone*. II gave 68.3% *4,4'-dihydroxy-3,3'-dimethoxybenzophenone*, m. 156–7° (from dil. EtOH). Similarly, cresaurin gave 80% *4,4'-dihydroxy-3,3'-dimethylbenzophenone*, m. 234–6°, while triiodosaurin gave 50% *4,4'-dihydroxy-3,3'-diiodobenzophenone*, m. 205–7° (from EtOH). The relative stability of the MeO derivs. to cleavage is discussed in the light of possible resonance and the greater resistance to hydrate formation exhibited by the MeO derivs. in comparison with the HO derivs. and quinones.

G. M. Kosolapoff

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POSTOVSKIY, I. YA.

"Chemistry of Oxyfuxones. II. Cleavage of the Oxyfuxones," Zhur. Obshch. Khim., 16, No. 12, 1946. Mbr. Lab Org. Chem., Ural Industries Inst. im. S. M. Kirov; Alliliate, All-Union Sci. Res. Chemico-Pharmaceutical Inst. im. S. Ordzhonikidze. Sverdlovsk, -1945-.

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Antibiotics. A. Ya. Postovskii and N. P. Bednyagina. *Uspekhi Khim.* 16, 3-28(1947).—Crit. review of recent work on penicillin, gramicidin, streptomycin, patulin, allicin. 71 references. N. Thon

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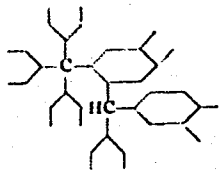
Chemistry of hydroxyfuchsones. III. Acetylation of rubrophen and eupittone. A. M. Eidlin and I. Ya. Postovskii (Ural Ind. Inst., Sverdlovsk). *J. Gen. Chem.* (U.S.S.R.) 17, 149-50(1947)(in Russian).—*Leucorubrophen* heated 1 hr. on a steam bath with 5 parts Ac_2O gave the *tri-Ac deriv.*, colorless, m. 150-1° (from EtOH). Rubrophen-HCl (1 g.) was heated with 40 cc. Ac_2O 3 hrs. on a steam bath to yield 1.1 g. product, m. 165-70°, which after crystn. from EtOH with charcoal, m. 197-200° (25%); after repeated crystn. it m. 206-8°; it appeared to have the compn. $(C_{25}H_{27}O_9)_2$ and showed evidence of some dissocn. in mol. wt. detns. by the Rast method; it did not have active H and appeared to be a *triacetate*. Rubrophen (1 g.) in 40 cc. AcOH and 10 cc. AcCl was gently boiled 1.5 hrs., then 10 cc. AcCl was added and heating continued 1.5 hrs. The orange soln. was poured into 200 cc. H_2O and filtered to give 60% triacetate, m. 206-8° (from EtOH), identical to that described above. Boiling of this with 8% alc. NaOH 1 hr. gave on cooling a ppt. of the *Na salt* of the *hydrolysis product*, which after treatment with AcOH gave a product, m. 232-5° (70%) (crude), m. 238-40° (from EtOH); this contained EtOH, which it lost at 98° to give a product of the compn. $(C_{25}H_{21}O_9)_2$. Although the nature of the tri-Ac compd. is as yet uncertain, it is believed to be the dimer of the free radical originating at the central C atom, which resonates with one of the *o*-C atoms, the 2 forms then forming the dimer of the probable structure:



Eupittone (0.5 g.) in 20 cc. hot AcOH was treated with 5 cc. AcCl; the red color slowly faded to pale yellow with pptn. of the HCl salt; after quenching with 100 cc. H_2O, there was obtained 62.5% $C_{21}H_{20}O_{13}$(?), m. 247-50° (from EtOH). G. M. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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C.A.

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Preparation of naphthacene. R. G. Belles and I. Ya. Postovskii (S. M. Kirov Polytech. Inst., Sverdlovsk). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 518-21(1950).—The methods of prepn. of *naphthacene* (I) are reviewed and improved procedures indicated as follows. [o-C_6H_4.CO.-O.C:CH]$_2$ (1 g.), heated 20 hrs. at 280-90° in 50 ml. purified transformer oil, gave on cooling, besides unreacted material, some 0.15 g. red needles of *6,11-dihydroxynaphthacenequinone*, m. 340° (from $PhNO_2$, then $Cl_2CHCHCl_2$), as a result of intramol. rearrangement. [o-C_6H_4(CO)$_2$.CH]$_2$ (1 g.), 2 g. Zn dust, 5 g. dry $ZnCl_2$, and 2 g. NaCl heated on an open flame 15 min. gave a sublimate of I and the *dihydro deriv.*; dehydrogenation of the crude product by heating with litharge gave 0.25 g. pure I, m. 340° (from xylene). Repetition of the 1st expt. under these conditions (Zn and $ZnCl_2$) also gave 11% I. If $ZnCl_2$ is absent, either procedure is very ineffective.

G. M. Kosolapoff

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AIII

Chemistry of naphthacene. V. Structure of halogen derivatives of naphthacenequinone. I. Y. Postovsky and R. G. Briles (*J. gen. Chem. USSR*, 1950, 20, 522—530 [U.S. transl., 551—559]; cf. preceding abstract).—It was undecided whether the compounds obtained from naphthacene-5 : 11-quinone and SO_2Cl_2 are 12-chloro- and 6 : 12-dichloronaphthacene-5 : 11-quinone or 11-chloro- and 6 : 11-dichloronaphthacene-5 : 12-quinone, respectively. A polarographic investigation—determining the half-wave potentials of these compounds—confirms the paraquinonoid structure. Hence, the purple dianilide deriv. has a *para* structure. An intramol. reorganisation of ananaphthacenequinone takes place therefore during its reaction with SO_2Cl_2.

Investigation is made with a visual polarograph, the anode being a normal calomel half-cell and the cathode a Hg-drop electrode, immersed in the solution tested. Anode and cathode are connected through an agar-agar switch filled with saturated KCl. A weighed quantity of the quinone is dissolved, with heating, in pure C_6H_6 to which EtOH and 0·1 N-KCl with 2 drops of 0·5% gelatin are added. If a ppt. forms when H_2 is passed, Pr^iOH must be substituted for EtOH. Owing to the low solubility of the quinones, buffer mixtures are not used. Pure H_2 is passed through the solution for 10—15 min. prior to each run, the curve is plotted and the operations are repeated. PCl_5 is added gradually to 5 : 12-dihydroxynaphthacene-6 : 11-quinone in boiling CCl_4 and the mixture is boiled for 3 hr. The yellow "complex" which separates from the cooled solution is filtered, dried, and warmed at

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60—70° for 1 hr. with conc. H_2SO_4 which causes evolution of HCl and formation of a red solution which deposits crude 5 : 12-dichloronaphthacene-6 : 11-quinone (67%) when poured onto ice; this is extracted with boiling xylene thereby giving the pure compound, m.p. 250—252°, in 44% yield. Heating samples of monochloronaphthacenequinone (prepared by ring-closure of *o*-1-chloro-2-naphthoylbenzoic acid or from anaanaphthacene[5 : 11]quinone and SO_2Cl_2) gives 5-N-*ethylanilinonaphthacene*-6 : 11-*quinone*, $C_{26}H_{19}O_2N$, m.p. 208—210°. 9 : 10-*Di*-(N-*ethylanilino*)*naphthacene*-6 : 11-*quinone*, $C_{38}H_{28}O_2N_2$, m.p. 222—224°, is derived similarly from the corresponding Cl_2 compound. H. WEBB.

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The structure of halogen derivatives of naphthacenequinone. V. I. Ya. Postovskii and R. G. Belles (S. M. Kirov Urals Polytech. Inst., Sverdlovsk). *J. Gen. Chem. U.S.S.R.* 20, 551-9(1950)(Engl. translation).—See *C.A.* 45, 599g.

R. M. S.

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The synthesis of naphthacene. R. G. Belles and I. Ya Postovskii (S. M. Kirov Urals Polytech. Inst., Sverdlovsk) *J. Gen. Chem. U.S.S.R.* 20, 547-50(1950)(Engl. translation). See C.A. 45, 500c. R. M. S.

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Significance of structure and polarity of sulfanilamides in their bacteristatic activity. V. Connection between structure and bacteristatic activity of sulfanilamide compounds. B. G. Boldyrev and I. Ya. Postovskii (Ural. Politekh. Inst. im. S. M. Kirova). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 936-43(1950); cf. *C.A.* 41, 3069e.—The sulfanilamide activity is detd. not only by the specific polarity of the compd., represented largely by the *p*-quinoid resonant structures, but also by the mol. dimensions and shape in comparison with the vitamin with which antagonism exists. Naphthalene analogs of common sulfanilamides were prepd.; these were inactive *in vivo* or *in vitro*, thus substantiating the contention above. Their thermodynamic consts. were detd., including: heats of combustion, heats of formation from gaseous elements, and energies of *p*-links (from comparative data on the sulfanilamides, their deaminated analogs, and naphthalenesulfonamide). The summary of data follows. Compounds of type *1,4-(R'NHSO₂)(NHR")C₁₀H₆*: *R'* = *H*, *R"* = *Ac*, m. 247-8°; *R'* = *H*, *R"* = *H*, m. 212-13°, heat of combustion 1300.6 kcal./mole, heat of formation 77.8 kcal./mole, energy of formation 2139.3 kcal./mole, *p*-link energy 2.3 kcal./mole; *R'* = *2-pyridyl*, *R"* = *Ac*, m. 275-6°; *R'* = *2-pyridyl*, *R"* = *H*, m. 231-3°, 1902.9, 50.3, 2975.8, 13.8; *R'* = *2-thiazolyl*, *R"* = *Ac*, m. 273-4°; *R'* = *2-thiazolyl*, *R"* = *H*, m. 250-2°, —, —, —, —; *R'* = *1-(4-sulfonamido)naphthyl*, *R"* = *Ac*, m. 252-3°; *R'* = *1-(4-sulfonamido)naphthyl*, *R"* = *H*, m. 211°, 2492.4, 161.9, 4045.9, 28.6. Compds. of type *1-RNH-C₁₀H₆*: *R* = *H*, m. 149-50°, 1270.8, 73.4, 1998.5, —; *R* = *2-pyridyl*, m. 214-15°, 1884.6, 34.5, 2823.6, —; *R* = *1-(4-sulfonamido)naphthyl*, m. 229-30°, 2488.8, 131.2, 3878.8, —. Comparison of energy of *p*-links in sulfanilamides and their naphthyl analogs gives, resp., the following values in kcal./mole: sulfanilamide 3.2, naphthyl analog 2.8, sulfapyridine 15.2, its naphthyl analog 13.8.

G. M. Kosolapoff

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CA

The significance of the structure and polarity of sulfanilamides for their bacteriostatic activity. V. The relation between the structure and the bacteriostatic activity of sulfanilamide compounds. B. G. Bokiyrev and I. Ya. Postovskii. *J. Gen. Chem. U.S.S.R.* 20, 975-81(1950) (Engl. translation).—See *C.A.* 44, 9631*f*. R. M. S

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Pseudoallicin. M. A. Bobova and I. Ya. Postovskii (S. M. Kirov Ural Polytech. Inst., Sverdlovsk). *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 1701-10(1950). An analog of the active principle of garlic, allicin, $CH_2:CH-CH_2SOSCH_2CH:CH_2$ (I), having the structure $CH_2:CH-CH_2SO_2SCH_2CH:CH_2$ has been prepd. and named *pseudoallicin* (II). It is cleaved by cysteine analogously to I, yielding $C_3H_5SO_2H$ and $C_3H_5SSCH_2CH(NH_2)CO_2H$ (III), m. 181-2°, established by independent reduction with Sn and HCl to $CH_2:CHCH_2SH$ and cysteine. II has 50% the potency of I against gram-pos. and gram-neg. organisms, and its activity is also unaffected by p-$H_2NC_6H_4CO_2H$; L-cysteine destroys its antibiotic properties. Its toxicity is analogous to that of I. Stirring 200 g. $Na_2SO_3.7H_2O$ in 300 ml. H_2O at 60° with slow addn. (1.5 hrs.) of 100 g. allyl bromide, followed by stirring 1.5 hrs. and 1 hr. on a steam bath, gave 189-94 g. crude product, which on extn. with hot 90% EtOH gave a double salt, $SCH_2:CHCH_2SO_3Na.NaBr$, decomp. about 235°, stable at room temp. This product (180 g.) and 320 g. $POCl_3$ heated 3 hrs. at 105°, then concd. at 50-60° and 80 mm., cooled, stirred with 75 ml. $CHCl_3$, filtered (the insol. part shaken with ice water and extd. again), and dried, gave 50.5 g. $C_3H_5SO_2Cl$, b_{10-11} 73-5°; redistn. gave 60% pure product, b_{10-11} 74°, n_D^{20} 1.4730, d_4^{20} 1.3322, which (2.8 g.) with NH_3 in dry Et_2O gave 95% of the *sulfonamide*, m. 43° (from C_6H_6); the latter (0.18 g.) with 0.25 g. Br in $CHCl_3$ gave $CH_2BrCHBrCH_2SO_2NH_2$, m. 95-6° (from C_6H_6). The chloride treated with $PhNH_2$ in the cold, then kept 0.5 hr. on a steam bath, gave $C_3H_5SO_2NHPh$, m. 62° (from 40% EtOH). Addn. of 28.1 g. chloride to a soln. of 25 g. KOH in 50 ml. H_2O satd. with H_2S at 10-15°, stirring 1 hr. at room temp., treatment with charcoal, evapn., and extn. with hot BuOH gave 81% $C_3H_5SO_2SK$, m. 147-8° (from abs. EtOH); acidification of its aq. soln. yields S, and on warming SO_2 evolves. The K salt (17.6 g.) and 13.5 g. allyl bromide in 120 ml. Me_2CO and 2 ml. H_2O, let stand overnight, followed by filtration and concn. *in vacuo*, washing an Et_2O soln. of the oil with H_2O, and reconcn. *in vacuo* gave 95% II, yellow undistillable oil, with strong garlic odor, n_D^{20} 1.5341, n_D^{25} 1.5338, d_4^{20} 1.1850, surface tension against air at 10° 38.92 erg/sq. cm. It is sol. in the usual solvents, poorly sol. in H_2O and petr. ether. Sn and HCl yield $CH_2:CHCH_2SH$; alkalies cause decompn. with loss of the odor. $HgCl_2$ and $AgNO_3$ give insol. ppts., Br water and $KMnO_4$ are rapidly decolorized. With cysteine-HCl in aq. EtOH at room temp., II yields within a few min. a ppt. of III (*S-allylmercaptocysteine*), m. 180-2° (decompn.), reaching 85% in 30 min. and isolated by adjusting the pH to 6.0 with bicarbonate. Allowed to stand overnight in a mixt. of HCl and Sn, then heated on a water bath in a stream of pure H, it readily evolved C_3H_5SH (recovered in an EtOH trap), while treatment of the filtered aq. residue with H_2S and evapn. gave L-*cysteine-HCl*, decomp. 170-8°.

G. M. Kosolapoff

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Chlorination of naphthacene and some peculiarities of its structure. R. G. Belles and I. Ya. Postovskii (S. M. Kirov Ural Polytech. Inst., Sverdlovsk). *Zhur. Obshchei Khim.* (*J. Gen. Chem.*) **20**, 1711–19(1950); cf. *C.A.* **45**, 560*e*.—In the chlorination of *naphthacene* (**I**) there is a tendency toward reactions at the *ana*-5,11 positions. The red dichloronaphthacene (**II**) has the *ana*-structure as indicated by its oxidation product: *6-chloronaphthacenequinone* (**III**). In the chlorination of **I** with SO_2Cl_2, either the red **II** or the colorless *ana*-dihydrodichloride (**IV**) may form. The peculiarity of **I** derives from the specific structure in which the rings are arranged in a linear manner with the presence of 2 central equiv. nuclei. Boiling 1.5 g. powd. 9,10-dichloronaphthacene-11,12-quinone (**V**), m. 250–2°, with 3 g. Zn dust in 100 ml. 2 *N* NaOH 10 hrs., followed by neutralization with H_2SO_4, gave 50% **I**, m. 340°, and 0.5 g. unreacted material. No reaction occurs at room temp. between **I** and PCl_5 in $PhNO_2$, but at the b.p. a red color forms and HCl is evolved; cooling after 5 min. gives 40% red **II**, m. 218–20°; the results are similar with ICl_3 but some reaction takes place even at room temp. After 15 min. at room temp. 0.5 g. **I** and 1 ml. SO_2Cl_2 yield 40% almost colorless **IV**, $C_{18}H_{12}Cl_2$, m. 180° (from C_6H_6), which, heated in tetrachloroethane (**VI**) 20 min., gave 30% of the red **II**, m. 218–20°, as above. **I** heated with excess SO_2Cl_2 2 hrs. at 130–5° in a sealed tube forms a hexa-Cl compd., probably 5,5,6,11,12,12-hexachloro-5,12-dihydronaphthacene (**VII**), m. 265° (from **VI**); this heated with concd. H_2SO_4 0.5 hr. at 60–70° gave HCl and a red soln. which on treatment with ice gave authentic **V**, m. 249–51°. When 0.2 g. **I** in 2 ml. **VI** is treated with SO_2Cl_2 until all the **I** dissolves (no excess) and the soln. is heated, a red color forms and the red **II** forms in 40% yield; heating this with excess SO_2Cl_2 in a sealed tube to 130–40° gives **VII**. The red **II** heated in xylene with *maleic anhydride* gave 35% of the *adduct*, m. 280–2° (from **VI**), after a 30-min. reaction. The ethylanilide obtained either from **III**, from the 5,11-dione, from the 6-HO analog of **III**, or from *o*-(1,2-$ClC_{18}H_4CO)C_6H_4CO_2H$ was the same *6-N-ethylanilinonaphthacenequinone* (cf. *C.A.* **35**, 6580[1]; **39**, 9281[1]).

G. M. Kosolapoff

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POSTOVSKIY, I. YA.

PA 192T28

USSR/Chemistry - Pharmaceuticals Mar/Apr 51

"Natural Guanidine Compounds," I. Ya. Postovskiy, N. P. Bednyagina, Sverdlovsk

"Uspekh Khim" Vol XX, No 2, pp 141-160

Reviews largely non-USSR work on chem and physiol reactions of many guanidine compds occurring in nature which have free guanidine group. Mention is made of alkaloids spherophyzine and smirnovine: Former lowers blood pressure and has been used clinically to produce contraction of uterus. Generalizations: Simple guanidine compds are very

192T28

USSR/Chemistry - Pharmaceuticals Mar/Apr 51
(Contd)

toxic, cause convulsions, fibrillary muscle twitching, act on peripheral motor nerve endings; complex compds (i.e., streptomycin) act on peripheral nervous system; compds not contg carboxyl group lower blood sugar content.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

USSR/Chemistry - Polarography 21 Apr 52

"Polarographic Investigations of Some Hydroxyazo Compounds," N. F. Vladimirtsev, I. Ya. Postovskiy, Ural Polytech Inst imeni S. M Kirov, Sverdlovsk

"Dok Ak Nauk SSSR" Vol LXXXIII, No 6, pp 855-858

Azo compds were reduced on a mercury drop electrode at a half-wave potential of 0.300-0.500 depending on the nature of the substituting group. Azobenzene, phenylazonaphthalene and their hydroxy derivs were investigated. The polagraphic data obtained show that this method can be used for comparative quant characterization of the mutual

223T4

effect of groups and atoms in the mol of some hydroxyazo compds, especially, for detg the effect of the OH, OCH_3, and SO_3H on the reducibility of azo groups.

223T4

POSTOVSKIY, I, YA.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. Ya.

Chem 2 3

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

The mechanism of the reaction of formation of phenazine according to Wohl. E. I. Abramova and I. Ya. Postovskii. *J. Gen. Chem. U.S.S.R.* 22, 505-71(1952)(Engl. translation).—See *C.A.* 47, 2184*d*. H. L. H.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

PA 190T42

USSR/Chemistry - Petroleum, Technology Oct 51

"Synthesis of 3-Methyl-4-Ethyl Thiophene," I. Ya. Postovskiy, N. P. Bednyagina, V. F. Kuznetsova

"Zhur Prik Khim" Vol XXIV, No 10, pp 1071-1073

Properties of alkylated thiophenes are little known, a fact which makes their identification difficult when they are sepd from petroleum distillates. Synthesized 3-methyl-4-ethyl thiophene by condensing pentanedione-2, 3 with thiodiglycol ether, which yielded a dicarbonylic acid. This was then decarboxylized to the final product. The product it gives indophenine reaction and forms complex compd with mercury acetate.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. Ya. 191T53

USSR/Chemistry - Antihelminthics Sep 51
Coumarin Derivatives

"Syntheses of Antihelminthic Substances of the Coumarin Series," I. Ya. Postovskiy, M. A. Panyukova, Ural Affiliate, All-Union Sci Res Chemicophar Inst imeni S. Ordzhonikidze

"Zhur Obshch Khim" Vol XXI, No 9, pp 1717-1720

In search for new antihelminthics, prepd new compds of coumarin series: 2-hydroxy-4-imino-6-hexyl-7-hydroxychroman (ketimine) and 4,7-dihydroxy-6-hexylcoumarin. Given to cats in doses of 0.1-0.2 g, these compds caused hyperemia of intestinal tract but no pronounced antihelminthic effects.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I.Ya.; VLADIMIRTSEV, I.F.

Properties and planarity of some arylaminonaphthoquinones. Doklady Akad. Nauk S.S.S.R. 84, 74-5 '52. (MLRA 5:6)
(CA 47 no.13:6387 '53)

1. S.M. Kirov Polytech. Inst., Sverdlovsk.

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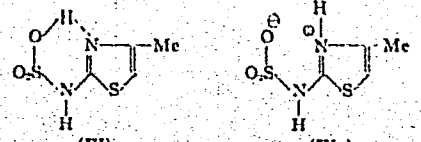
POSTOVSKIY, I-Ya.

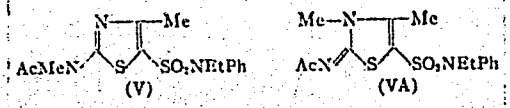
USSR

7 Structure of sulfonic acids of 2-amino-4-methylthiazole. I. Ya. Postovskiĭ and T. S. Mamykina (S. M. Kirov Ural Polytech. Inst.). *Zhur. Obshchei Khim.* 23, 1765-70 (1953); cf. *C.A.* 39, 4061[8]; 39, 1151[4]; Ochiai and Nagasawa, *C.A.* 33, 7782[3]; Hurd, *et al.*, *C.A.* 45, 155*e*.—$ClSO_3H$ with 2-acetamido-4-methylthiazole (I) yields 2-acetamido-4-methyl-5-thiazolesulfonyl chloride (II). The structures proposed by Hurd and Ochiai (*loc. cit.*) are erroneous. The acid (III), m. 253-6°, formed by hydrolysis of II and on heating with H_2SO_4 changes to an acid, decomp. above 340°, an example of an unusual transition of the sulfonic acid into a sulfamic acid (IV or IVa). Addn. of $ClSO_3H$ to I

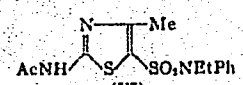


(IV) (IVa)

in CCl_4 gives some 40% pure III, m. 250° (decompn.). The following technique gives better results. I (17.5 g.) in 75 ml. CCl_4 was slowly added with cooling over 3 hrs. to 22 ml. $ClSO_3H$ (temp. kept under 14°), and the mixt. poured on ice, yielding 70% III, decomp. 253-6° (from H_2O). I (20 g.) added to 30 ml. concd. H_2SO_4, and the mixt. heated 5 hrs. at 160-65°, cooled to 50°, and poured into ice water gave 76% IV (or IVa), m. above 350° (from H_2O). III taken up in aq. NaOH, the soln. evapd., and the resulting Na salt (7.7 g.) treated with 17 ml. Ac_2O, refluxed 2 hrs., and cooled gave 8.8 g. Ac deriv., which, heated 1-1.5 hrs. with 15 g. PCl_5 on a steam bath, cooled, and treated with ice, gave II, m. 156-7° (from CCl_4:$CHCl_3$), identical with the specimen obtained from $ClSO_3H$ and I directly. II also forms from $ClSO_3H$ and the Na salt of III, but the yield is lower. I contains 1 active H/(Zerevitinov) mol. II (2.5 g.) added to 1.2 g. EtNHPh in dry pyridine, kept 1 day, and dild. with H_2O gave 91% of the *corresponding N-ethylanilide*, m. 188-9° (from dil. EtOH). This with Me_2SO_4 in *N* NaOH gave 74% *methylated product*, probably (V) or (VA), m. 128-9°, which does not react



(V) (VA)



(VI)

with MeMgI, indicating the absence of active H. Thus the ethylanilide must have structure (VI). II in dry pyridine treated with cooling with gaseous Me_2NH gave 93% *2-acetamido-N,N,4-trimethyl-5-thiazolesulfonamide*, m. 242-3° (from dil. EtOH), which has 1 active H, at the AcNH group.

G. M. Kosolapoff

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. Ya.

Hydrolytic cleavage of aryl and alkyl 2-benzothiazolyl sulfones. I. Mechanism of the reaction of cleavage of aryl and alkyl 6-nitro-2-benzothiazolyl sulfones. I. Ya. Postovskii and I. A. Alekseeva. *Zhur. Obshchei Khim.* 23, 1905–11(1953).—Aryl and alkyl 6-nitrobenzothiazolyl sulfones are cleaved in acidic and alk. solns. with formation of *6-nitro-2-benzothiazolinone* (I). The reaction yields products the nature of which depends on the structures of the original compds. In cases which yield an unstable sulfinic acid, the reaction yields a hydrocarbon with evolution of H_2S, or other products expected of decompn. of such sulfinic acids. Benzothiazolyl sulfides are not cleaved by these reagents under the conditions which affect the sulfones. The sulfone link in these substances has partial —N=C—SO_2— character which facilitates hydrolytic attack. 6-Nitro-2-mercaptobenzothiazole (21.2 g.) in 200 ml. EtOH and 50 ml. 2*N* NaOH treated hot with 16 g. KI and 11.7 g. $PhCOCH_2Cl$ in EtOH, yielding after 1 hr. 60% *6-nitro-2-benzothiazolyl phenacyl sulfide*, m. 129–30° (from dil. EtOH); this (21 g.) in 1 l. AcOH treated with 7.5% $KMnO_4$ until the color is maintained, gave 25% corresponding *sulfone* (II), m. 173–[illegible] (from aq. Me_2CO). Similarly, *p*-$O_2NC_6H_4CH_2Cl$ gave [illegible]% *6-nitro-2-benzothiazolyl 4-nitrobenzyl sulfide*, m. 161°, which with $KMnO_4$ gave 85% corresponding *sulfone* (III), m. [illegible]7–8° (from Me_2CO). To 9 g. 2-chloro-6-nitrobenzothi[illegible] 500 ml. EtOH was added at reflux a soln. of 9 g. [illegible] thiophenol in alc. soln. of 3.2 g. NaOH, yielding [illegible] *nitro-2-benzothiazolyl 4-nitrophenyl sulfide*, m. 17[illegible] AcOH), which with $KMnO_4$ gave 84% corre[illegible] *sulfone* (IV), m. 274–5° (from Me_2CO). Refluxing [illegible] *6-nitro-2-benzothiazolyl benzyl sulfone* (m. 192°) in [illegible] ml. 2*N* NaOH gave BzH and 91% I, m. 249–50°. Short reaction in 1:1 HCl gave 92% I. II treated with 2*N* NaOH reacts even at room temp., yielding AcPh; in 5 min. at 60° the reaction is complete, yielding 60% AcPh and 96% I; HCl gave a similar result. III boiled 2 hrs. in 2*N* NaOH gave 52% *p*-nitrotoluene and 85% II. IV boiled 0.5 hr. in 2*N* NaOH gave orange ppt. of Na salt of 6-nitro-2-hydroxybenzothiazole, which on acidification gave I; the acidified filtrate treated with *p*-benzoquinone gave *2,5-dihydroxy-4'-nitrodiphenyl sulfone*, m. 208–9°. A more pure specimen, m. 210–11°, was obtained by coupling *p*-nitrobenzenesulfinic acid with *p*-benzoquinone at room temp. in H_2O.

G. M. Kosolapoff

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Chem. Abs V48
1-25-54
Electronic Phenomena

9 (4)

Infrared spectra and structure of thiosemicarbazones. S. G. Bogomolov, I. Ya. Postovskii, and Yu. N. Sheinker (S. Ordzhonikidze All-Union Chem.-Pharm. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 91, 1111-14(1953).—Infrared spectra of the following compds. are presented $AcNHC_6H_4CH:NNHC(:S)NH_2$, $Me_2C:NNHC(:S)NH_2$, $PhCH:NNHC(:S)NH_2$, $H_2NNHC(:S)NH_2$, $MePhC:NNHC(:S)NH_2$, $MeCH:NNHCONH_2$, $MeCH:NNHC(:S)NH_2$, and $PhCH:NNHCONH_2$. The thiol group SH in a tautomer should display the thiol band at 2500 cm.$^{-1}$, while the thiono group C:S has a band at 1500 cm.$^{-1}$. In above S compds. no bands in 2500-2650-cm.$^{-1}$ region were found; this disproves the tautomerism of the thiono-thiolo type. All had bands in 1516-1533-cm.$^{-1}$ region. The semicarbazones have bands in 1658-65-cm.$^{-1}$ region, as expected for the CO group. A vibration-deformation band at 1588-1626 cm.$^{-1}$ is also found; this is caused by vibration of NH_2.

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

USSR/Chemistry - Pharmaceuticals 11 Aug 53

"Infra-Red Spectra and the Structure of Semicarbazones," S. G. Bogomolov, I. Ya. Postovskiy and Yu. N. Sheynker, Ural Polytech Inst im S. M. Kirov, Sverdlovsk, and All-Union Sci-Res Chemicopharm Inst im Ordzhonikidze, Moscow

DAN SSSR, Vol 91, No 5, pp 1111-1114

Studied the characteristics of the chemical structure of semicarbazones with the aid of infrared absorption spectra. In all of the semicarbazones studied, an absorption band was noticed in

266T7

the region 1588-1626 cm^{-1}, which apparently indicates a deformational oscillation of the $-NH_2$ group. Compds of this class are effective antituberculous drugs. Presented by Acad V. M. Rodionov 17 June 53.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

KUSHKIN, V.V.; POSTOVSKIY, I.Ya.; RODIONOV, V.M., akademik.

On the tautomerism of 2-aminothiazole and its derivatives. Dokl.AN SSSR 93 no.1:63-65 N '53. (MLRA 6:10)

1. Akademiya nauk SSSR (for Rodionov). 2. Ural'skiy politekhnicheskiy institut im. S.M.Kirova (for Kushkin and Postovskiy).

(Thiazoles) (Tautomerism)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. Ya.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Electronic Phenomena and Spectra

Infrared and ultraviolet spectra of absorption of some acetylated derivatives of 2-aminothiazole. S. G. Bunimovich, Yu. N. Sheinker, and I. Ya. Postovskii (All-Union Chem. Pharm. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 93, 277–80(1953).—Absorption spectra of acetylated: 2-aminothiazole (I), 2-amino-4-methylthiazole (II), 2-amino-4,5-dimethylthiazole (III), 2-amino-4-phenylthiazole (IV), and 2-amino-4-methyl-5-bromothiazole (V), as well as 2-(*N*-methylacetamido)-4-methylthiazole (VI), and 2-acetylimino-3,4-dimethyl-4-thiazoline (VII) were recorded (curves are shown). VI, known to have a thiazole structure, shows bands at 1648 and 1542 cm.$^{-1}$; VII shows only a band at 1588 cm.$^{-1}$ I-V show 2 bands in 1650–90 and 1535–50-cm.$^{-1}$ regions, while the thiazoline band at 1588 cm.$^{-1}$ is totally absent. Thus I-V have structures analogous to VI. II, III, IV, and V show a band at 3155 cm.$^{-1}$, possibly that of NH vibration; this is absent in VI and VII. In I there are seen 3155- and 3080- and 3250-cm.$^{-1}$ bands, the origin of the last 2 being unknown. VI shows absorption max. 2760 A. (log ϵ 3.8); VII shows absorption max. 3020 A. (log ϵ 4.0). I-V show absorption max. in the area of 2680–2840 A. close to that of VI. I shows a slight band at 2960 A. (log ϵ 2.96), possibly caused by thiazoline tautomer in the EtOH soln. (3–7% estd.). No bands at 3020 A. are seen in II-V, showing the absence of thiazoline form. G. M. Kosolapoff

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

USSR/ Chemistry - Spectral analysis

Card 1/1 Pub. 43 - 60/62

Authors : Bogomolov, S. G.; Sheynker, Yu. N.; and Postovskiy, I. Ya.

Title : The structure of 2-amino-4-methylthiazole sulfonic acids explained by means of infrared spectra

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, page 740, Nov-Dec 1954

Abstract : Utilizing the infrared spectra of isomeric 2-amino-4-methylthiazole sulfonic acids and many derivatives of 2-aminothiazole the authors established the proper structure of these acids. The spectra of isomeric acids indicate that the low-fusible acid has the NH_2-group in the molecule and the high melting acid the NH group and their structures are different. The conversion of the low-melting acid into high-melting represents a regrouping of the sulfo-acid into sulfamic acid.

Institution : The S. Ordzhonikidze All-Union Sc. Res. Chem. Pharmac. Inst.

Submitted : .....

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

USSR/Chemistry - Photochemistry

Card 1/1 Pub. 151 - 34/36

Authors : Vladimirtsev, I. F.; Postovskiy, I. Ya.; and Trefilova, L. F.

Title : Steric hindrances and properties of certain aryl amino naphthoquinones

Periodical : Zhur. ob. khim. 24/1, 181-187, Jan 1954

Abstract : The attitude of N-ethylated and N-acetylated derivatives of 2-anilino-3-halogenonaphthoquinone-1,4 was investigated when exposed to light. It was found that ethylated and acetylated products when exposed to sun light separate the ethyl or acetyl groups and convert into non-substituted products. Increased reactivity of the halide atom in position 3 was found to be another prominent characteristic of ethylated and acetylated compounds. The photochemical separation of groups in the nitrogen atom and the increased reactivity of halide atoms in ethylated and acetylated products is explained by the presence of steric hindrances in their molecules. The origin of the steric hindrances is elucidated. Six references: 4-USSR; 1-German and 1-USA (1884-1952). Table.

Institution : The S. M. Kirov Ural Polytechnicum

Submitted : July 11, 1953

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY - IYA.

USSR/Chemistry - Pharmaceuticals

Card 1/1 : Pub. 151 - 16/37

Authors : Postovskiy, I. Ya., and Abramova, E. I.

Title : Synthesis of certain N-oxides phenazine derivatives

Periodical : Zhur. ob. khim. 24/3, 485-488, Mar 1954

Abstract : The mono-oxides derived during the oxidation of 1-phenazinecarboxylic acid and the amide of this acid, with hydrogen peroxide, are described. It was found that the presence of the carboxyl or carboxyamide group in position 1 hinders the addition of the second oxygen atom to the nitrogen atom (in position 9). The formation of chlorophenazine compounds, during the reaction of $POCl_3$ with N-oxides of phenazine, is announced. The difficulty in the addition of the second oxygen atom in the case of oxidation of 1-phenazinecarboxylic acid and its amide is explained by the steric hindrances originating under the effect of the carboxyl and carboxyamide groups. Twenty-three references: 13-USSR; 6-German and 4-USA (1911-1953).

Institution : The S. Ordzhonikidze All-Union Scientific Research Chemical-Pharmacological Institute, Ural Branch

Submitted : October 27, 1953

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I.Ya.

Synthesis of some N-oxides of phenazine derivatives. I. Ya. Postovskii and E. I. Abramova. J. Gen. Chem. U.S.S.R. 24, 883-6(1954)(Engl. translation).—See C.A. 49, 6273c. H. L. H.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

USSR/Chemistry - Analytical

Card 1/1 : Pub. 151 - 30/37

Authors : Bogomolov, S. G.; Sheynker, Yu. N.; and Postovskiy, I. Ya.

Title : The structure of 2-amino-4-methylthiazolesulfonic acids. Part 2.-The structure of 2-amino-4-methylthiazolesulfonic acid analyzed by means of infrared spectra

Periodical : Zhur. ob. khim. 24/3, 539-548, Mar 1954

Abstract : The structure of 2-amino-4-methylthiazolesulfonic acid and numerous other 2-aminothiazole derivatives was determined on the basis of infrared absorption spectra. The low-fusible sulfo-acid obtained during sulfonation of 2-amino-4-methylthiazole was found to be 2-amino-4-methylthiazole-5-sulfonic acid and its isomeric high-melting acid formed from low-melting acid during heating with H_2SO_4-4-methylthiazole-2-sulfamic acid. It was also established that the product obtained from chlorosulfonation of 2-acetamide-4-methylthiazole was actually N-acetylated chloride of 5-sulfonic acid and all the sulfamides derived from acid chlorides (amides of that acid). Eight references: 3-USA; 4-USSR and 1-German (1939-1953). Tables; graphs.

Institution : All-Union Scientific Research Chemical-Pharmaceutical Institute, Moscow

Submitted : August 14, 1953

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

FOSTOVSKIY, I. YA.

USSR

Structure of sulfonic acids of 2-amino-4-methylthiazole. II. Clarification of structure of sulfonic acids of 2-amino-4-methylthiazole by means of infrared spectra. S. G. Bogomolov [illegible] Ya. Postovskiy [illegible] Russ. transla- H. L. H.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I-Ya.

Hydrolytic cleavage of 2-benzothiazolylaryl and alkyl sulfones. II. Effect of some substituents on relative rate of cleavage. I. A. Alekseeva and I. Ya. Postovskii. *J. Gen. Chem. U.S.S.R.* 24, 1781-4(1954)(Engl. translation).—See *C.A.* 49, 12444h.

B. M. R.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

USSR/Chemistry - Hydrolytic splitting

Card 1/1 Pub. 151 - 20/37

Authors : Alekseyeva, I. A., and Postovskiy, I. Ya.

Title : Hydrolytic splitting of benzthiazolyl-2-aryl- and alkylsulfones. Part 2.- Effect of certain substitutes on the relative rate of cleavage.

Periodical : Zhur. ob. khim. 24/10, 1814-1819, Oct 1954

Abstract : The relative stability of certain compounds, with respect to hydrolysis, was measured. It was found that the electron-acceptor nitro-group in 6-nitro-benzthiazolyl-2-arylsulfone decreases the hydrolysis-resistance of the sulfone whereas the electron-donor methoxy-group increases the hydrolysis resistance of the sulfone. The relative rate of hydrolytic cleavage of sulfones with an aliphatic radical, was established. Several new benzthiazolyl-2-aryl- and alkylsulfones are described. Five references: 3-USA and 2-USSR (1936-1953). Table.

Institution : The S. M. Kirov Ural Polytechnicum

Submitted : May 14, 1954

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. YA.

3

Reduction of thiadiazoles with ring opening. F. P. Melovshchikova and I. Ya. Postovskii. *J. Gen. Chem. U.S.S.R.* 24, 1080-91(1954)(Engl. translation).—See *C.A.* 49, 14744b. B. M. R.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. Ya.

4

USSR

Reduction of thiadiazoles with ring opening. P. P. Medoyshchikova and I. Ya. Postovskii (Ural Polytech. Inst.). *Zhur. Obshchei Khim.* 24, 2021-7(1954).—Reduction of some thiadiazoles results in the formation of the corresponding thiosemicarbazones. The 5-Me deriv. is more stable in this respect than 5-aryl analogs, so that 2-amino-5-methyl-1,3,4-thiadiazole is not reduced by 5% Na-Hg; the same is observed in polarography. 5-Phenyl-2-amino-1,3,4-thiadiazole (0.5 g.) in 40 ml. EtOH slowly treated with 26 g. 5% Na-Hg over 1 hr., and the soln. stirred 3.5 hrs., decanted, dild. with 1.0 vol. H_2O, concd., and acidified with 2*N* HCl yielded 50% $PhCH:NNHCSNH_2$, m. 155°. Similar treatment of 0.5 g. 5-*p*-acetamidophenyl-2-amino-1,3,4-thiadiazole, m. 250° [prepd. either by oxidation of *p*-$AcNHC_6H_4CH:NNHCSNH_2$ (I) with $FeCl_3$ or by condensation of *p*-$AcNHC_6H_4CONHNHCSNH_2$ in the presence of H_3PO_4], gave 0.26 g. I, m. 222°. While 2-amino-1,3,4-thiadiazole, and its 5-Me deriv. could not be reduced on the dropping Hg electrode, the 5-Ph deriv. was reduced with the half-wave potential of −1.040 v. (cf. Young, and Eyre, *J. Chem. Soc.* 79, 64(1901); Freund and Meinecke (*Ber.* 29, 2514(1896)). The ring opens apparently at the 2,3-position. G. M. K.

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POSTOVSKIY, I. Ya.

4

1/ Analogy of some properties of derivatives of 3-pyridinesulfonamide and *m*-nitrobenzenesulfonamide. — Ya. Ya. Iseklianovich, I. Ya. Postovskii, and V. F. Dzetvatov. — *Zhur. Obshchei Khim.* 25, 1162–9(1955).—Replacement of C_6H_5 ring for pyridine in *m*-sulfonamides increases the acidity of the latter as does the introduction of a NO_2 group. *m*-Nitrophenyl and 3-pyridine derivs. have comparable dissocn. consts. NO_2 or Cl increase the acidity of the sulfonamides, while MeO decreases it. The dissocn. consts. were detd. potentiometrically in H_2O or 96% EtOH. The following values of pK_a were found: $PhSO_2NHPh$ 10.8; 3-$C_5H_4NSO_2NHPh$ 9.6; *m*-$O_2NC_6H_4SO_2NHPh$ 9.55; 3-$C_5H_4NSO_2NHC_6H_4NO_2$-*p* 6.6; 3-$C_5H_4NSO_2NHC_6H_4NO_2$-*m* 7.35; 3-$C_5H_4NSO_2NHC_6H_4NO_2$-*o* 6.7; 3-$C_5H_4NSO_2NHC_6H_4N$-2 8.45; *m*-$O_2NC_6H_4SO_2NHC_6H_4NO_2$-*p* 6.65; *m*-$O_2NC_6H_4SO_2NHC_6H_4NO_2$-*m* 7.2; *m*-$O_2NC_6H_4SO_2NHC_6H_4NO_2$-*o* 6.65; *m*-$O_2NC_6H_4SO_2NHC_6H_4N$-2 8.35; 3-$C_5H_4NSO_2NHPh$ 9.6; 3-$C_5H_4NSO_2NHC_6H_4Cl$-*p* 8.7; 3-$C_5H_4NSO_2NHC_6H_4Cl$-*m* 8.45; 3-$C_5H_4NSO_2NHC_6H_4Cl$-*o* 8.2; *m*-$O_2NC_6H_4SO_2NHC_6H_4Cl$-*p* 8.6; *m*-Cl analog 8.35; *o*-Cl analog 8.1; 3-$C_5H_4NSO_2NHC_6H_4OMe$-*p* 10.05; *m*-$O_2NC_6H_4SO_2NHC_6H_4OMe$-*p* 10.00. The 3-pyridinesulfonamides were prepd. according to McElvain and Goece (*C.A.* 38, 356[9]) but sulfonation was done at 260–5° and the reaction product was isolated by chilling to 0° and pptn. with MeOH, yielding 75% of the sulfonic acid, which heated with PCl_5 gave 80–5% sulfonyl chloride. The amides were prepd. from the chlorides and corresponding amines in pyridine at 60–70°. The following m.ps. are reported: $PhSO_2NHPh$, 112°; 3-$C_5H_4NSO_2NHPh$, 145°; *m*-$O_2NC_6H_4SO_2NHPh$, 128; 3-$C_5H_4NSO_2NHC_6H_4NO_2$-*p*, 216°; *m*-nitro isomer, 205°; *o*-nitro isomer, 134°; *m*-$O_2NC_6H_4SO_2NHC_6H_4NO_2$-*p*, 179°; *m*-$O_2NC_6H_4SO_2NHC_6H_4NO_2$-*m*, 152°; *m*-$O_2NC_6H_4SO_2NHC_6H_4NO_2$-*o*, 167°; 3-$C_5H_4NSO_2NHC_6H_4N$-2, 184°; *m*-$O_2NC_6H_4SO_2NHC_6H_4N$-2, 228–9°; 3-$C_5H_4NSO_2NHC_6H_4Cl$-*p*, 160°; *m*-Cl analog, 168°; *o*-Cl analog, 127°; *m*-$O_2NC_6H_4SO_2NHC_6H_4Cl$-*p*, 123°; *m*-Cl analog, 147°; *o*-Cl analog, 149°; 3-$C_5H_4NSO_2NHC_6H_4OMe$-*p*, 141°; *m*-$O_2NC_6H_4SO_2NHC_6H_4OMe$-*p*, 124°. G. M. Kosolapoff

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

Postovskiy, I. Ya.

E-2

USSR/Organic Chemistry. Synthetic Organic Chemistry.

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19127

Author : Postovskiy I. Ya., Matevosyan R.O., Sheiynker Yu. N.
Inst :
Title : Structure of the Product Obtained by the Interaction of Aniline with Propargylaldehyde.

Orig Pub: Zh. Obshch. Khimiyi, 1956, 26 No 5, 1443-1448

Abstract: Structure (II) C_6H_5N-----H-O is ascribed to the product
$CH - CH{=}CH$
obtained by the interaction of aniline with CH CCHO(I) (Claisen, Ber., 1903, 36, 3664) based on the study of its chemical properties and of the IK-spector. Analogical products are obtained with o-anizidine, m.p. 112-114° (from benzene), and β-naphthylamine, m.p. 124-125° (from benzene). At dehydration II yields Quinoline, and by the action of acid it is transformed into $CH_2(CH{=}NC_6H_5)_2$ (III). 0.1 mole I in 10cc C_6H_6 at 0° is added to 0.1

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342630003-9

POSTOVSKIY, I. Ya.

Structure of the reaction product of aniline with propargyl aldehyde. I. Ya. Postovskii, R. O. Matevosyan, and Yu. N. Shtinker. *J. Gen. Chem. U.S.S.R.* 26, 1623-8(1956) (English translation).—See *C.A.* 50, 14753g. B. M. R.

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~~POSTOVSKIY, I. YA.~~

POSTOVSKIY, I. YA.

Structure of disulfamides of thiazole. I. Ya. Postovskii and V. V. Kushkin. *Zhur. Obshchei Khim.* 26, 2052-8 (1956).—The structure of disulfonamido derivs. of thiazole is reviewed. 2-Aminothiazole (0 g.) in pyridine with 12.6 g. p-$ClC_6H_4SO_2Cl$ (I) at 90-5° gave 48.7% 2-(p-chlorobenzenesulfamido)thiazole (Ia), m. 198-9°, which in pyridine with p-$AcNHC_6H_4SO_2Cl$ (II) gave 74.2% 2-(p-*chlorobenzenesulfonimido*)-3-(*acetylsulfanilyl*)-4-*thiazoline* (IV), m. 164-6°. I with acetylsulfathiazole (III) in pyridine gave 74% 2-*acetylsulfanilylimido*-3-(p-*chlorobenzenesulfonyl*)-4-*thiazoline* (IV), m. 163-4°. II and 2-(benzenesulfonamido)thiazole gave 52% 2-(*benzenesulfonimido*)-3-(*acetylsulfanilyl*)-4-*thiazoline* (V), m. 143-5°. III and $PhSO_2Cl$ gave 70.7% 2-(*acetylsulfanilylimido*)-3-(*benzenesulfonyl*)-4-*thiazoline* (VI), m. 155-7°. IIa was hydrolyzed in 15% NH_4OH at 70° to p-$ClC_6H_4SO_2NH_2$ and III; IV gave acetylsulfanilamide and Ia; V gave acetylsulfanilamide and benzenesulfonamidothiazole, m. 168°; VI gave $PhSO_2NH_2$ and III. The new disulfonamides reported have the thiazoline structures.

— G. M. Kosolapoff

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Hydrolytic cleavage of some sulfones of heterocyclic series. III. *p*-Nitrophenyl sulfides and sulfones of benzazoles and 1-phenylphthalazines. N. P. Bednyagina and I. Ya. Postovskii. *Zhur. Obshchei Khim.* 26, 2270-81 (1956); cf. *C.A.* 50, 7783d.—Sulfones contg. a sulfoazomethine grouping were hydrolytically cleaved in basic soln. 2-Chlorobenzoxazole (5 g.) with 6 g. *p*-$O_2NC_6H_4SNa$ in EtOH gave 80% yellow *2-benzoxazolyl p-nitrophenyl sulfide*, m. 94-7° (from EtOH). This with 7% $KMnO_4$ in AcOH gave 70% corresponding *sulfone*, m. 201-5° (from EtOH). 2-Chlorobenzimidazole gave 76% *2-benzimidazolyl p-nitrophenyl sulfide*, yellow, m. 183-3°; *sulfone*, m. 222-3°. The latter formed a yellow Na salt with 20% NaOH, which refluxed with MeI gave 80% *1-methyl-2-benzimidazolyl p-nitrophenyl sulfone*, yellow, m. 167-8°. 4-Phenyl-1-chlorophthalazine (3.6 g.) with 2.6 g. *p*-$O_2NC_6H_4SNa$ in EtOH gave 97% *4-phenyl-1-phthalazyl p-nitrophenyl sulfide*, yellow, m. 158-60°; *sulfone*, m. 147-50°. The sulfones were hydrolyzed with 2*N* NaOH on a steam bath in 0.5 hr. yielding as the isolable product 2,5-dihydroxy-4-nitrodiphenyl sulfone, obtained by treatment of the mixt. with benzoquinone which added to *p*-$O_2NC_6H_4SO_2H$, the primary product of hydrolysis. G. M. Kosolapoff

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Heterocyclic compounds prepared from hydrazides. I. 1,3,4-Triazole-5-thiones. I. Ya. Postovskiy and N. N. Vereshchagina. *Zhur. Obshchei Khim.* 26, 2583-8(1956).—The following semicarbazides and triazole derivs. proved to be devoid of antitubercular activity. Treatment of 3.7 g. isonicotinic hydrazide with 4.4 g. *p*-ClC_6H_4NCS in hot EtOH gave 91% *1-isonicotinoyl-4-(p-chlorophenyl)-thiosemicarbazide*, m. 179-80°. Similarly were prepd. *1-isonicotinoyl-4-R-thiosemicarbazides* (*R* shown): *p*-$MeO-C_6H_4$, 92%, m. 177-8°; *p*-$EtOC_6H_4$, 94%, m. 175-7°. *1-Nicotinoyl-4-p-ethoxyphenylthiosemicarbazide*, 90%, m. 160-1°; *1-benzoyl-4-(p-ethoxyphenyl)thiosemicarbazide*, 80%, m. 166-7°; *1-(p-aminobenzoyl)-4-(p-ethoxyphenyl)thiosemicarbazide*, 87%, m. 166-7°. These refluxed 15 min. with 2*N* NaOH and the pptd. Na salt taken up in H_2O and acidified to litmus with HCl gave the following *1,3,4-triazole-5-thiones*: 87% *1-(p-chlorophenyl)-2-(4-pyridyl)*, m. 269-71°; 87% *1-p-anisyl-2-(4-pyridyl)*, m. 238-9°; 90% *1-(p-ethoxyphenyl-2-(4-pyridyl)*, m. 223-4°; 87% *1-(p-ethoxyphenyl)-2-(3-pyridyl)*, m. 238-40°; 87% *2-phenyl-1-(p-ethoxyphenyl)*, m. 264-5°; 80% *1-(p-ethoxyphenyl)-2-(p-aminophenyl)*, m. 268-9°. II. 2,5-Substituted 1,3,4-thiadiazoles. N. N. Vereshchagina and I. Ya. Postovskii. *Ibid.* 2588-92.—The following thiadiazoles failed to show antitubercular activity. 1-Isonicotinoyl-4-(*p*-ethoxyphenyl)thiosemicarbazide was dissolved in 10 ml. concd. H_2SO_4 with cooling, allowed to stand 15 min. and was quenched with ice; the red ppt. was treated with NH_4OH, yielding 90% yellow *2-(4-pyridyl)-5-(p-ethoxyphenyl)amino-1,3,4-thiadiazole*, m. 188-9° (from EtOH). This gives a red soln. in H_2SO_4; with $FeSO_4$ in EtOH it gives an orange ppt.; with $CuCl_2$,

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it gives an orange ppt. which turns brown; with $CuSO_4$ it gives a yellow ppt.; vanadyl sulfate gives a brown color followed by an orange ppt.; with Ac_2O it forms the acetyl deriv., m. 192-3°. Similarly were prepd. the following *1,3,4-thiadiazoles*: *2-(4-pyridyl)-5-(p-anisyl)*, 50%, m. 180-7°; *2-(3-pyridyl)-5-(p-chlorophenyl)*, 47%, m. 257-8°; *2-(4-Pyridyl)-5-allyl*, 76%, m. 133-4°; *2-(4-phenyl)*, 66%, m. 185-7°; *2-(3-pyridyl)-5-(p-ethoxy-*, 131-2°; and *2-phenyl-5-(p-ethoxyphenyl)*, 17%, m. 157-8° (this was prepd. from the thiosemicarbazide and AcCl by letting the reactants stand until soln. occurred); *2-(p-aminophenyl)-5-(p-ethoxyphenyl)*, 88%, m. 178-9°.

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POSTOYSKIY, I. Ya.

Cyclic isomers of acyl hydrazones of α,β-unsaturated ketones and their tuberculostatic activity. I. Ya. Postoyskiy and N. N. Yereshchagina (S. M. Kirov Ural Polytech. Inst., Sverdlovsk). *Doklady Akad. Nauk S.S.S.R.* 110, 802-4(1956).—Reaction of 1.5 g. furfuralacetone in EtOH with 1 ml. $N_2H_4.H_2O$ gave 3-methyl-5-furylpyrazoline, isolated after evapn. of the solvent; this treated *in situ* with 1 g. BzCl and 10 ml. aq. NaOH gave 35% yellow *1-benzoyl-3-methyl-5-furylpyrazoline*, m. 73-4°. Nicotinoyl chloride HCl salt (5 g.) in Et_2O treated with 10 ml. pyridine and 4.5 g. 3-methyl-5-phenylpyrazoline in Et_2O gave in 30-40 min. 23% colorless *1-isonicotinoyl-3-methyl-5-phenylpyrazoline*, m. 77-8° (from aq. EtOH). The latter showed no tuberculostatic activity, unlike its noncyclic analog, 4-$NC_5H_4CONHN{:}CMeCH{:}CHPh$. Acylhydrazones appear to be incapable of cyclization which is readily undergone by arylhydrazones. G. M. Kosolapoff

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POSTOVSKIY, I. Ya.

PRIKHOT'KO, A.F.

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POSTOVSKIY, I. YA.

AUTHORS: Postovskiy, I. Ya. and Nosenkova, N. G. 79-2-53/58

TITLE: Synthesis of Certain Substituted Hexahydropyrimidines (Piperimidines) (Sintez nekotorykh zameshchennykh geksagidropirimidinov (piperimidinov)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 526-529 (U.S.S.R.)

ABSTRACT: The synthesis of hexahydropyrimidine compounds with N-benzyl groups is described. These compounds were obtained with an almost quantitative yield during the reaction of N, N'-dibenzyltrimethylenediamine with aromatic aldehydes. The piperimidine compounds are described as well-crystallizing substances with a constant melting point after only one crystallization. When used as bases, they offer hydrochlorides and picrates. They are characterized by decomposition when heated with diluted acids and formation of basic substances (diamine and aldehyde).

Card 1/2 1 table. There are 6 references, none of which are Slavic.

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AUTHORS: Kazarinova, N. F., Postovskiy, I. Ya. 79-12-29/43

TITLE: On the Tautomery of Acridine Compounds (K tautomerii akridinovykh soyedineniy).
On the Structure of 9 - (π - Oxyphenyl) - and 9 - (π-Oxystyryl) Acridine (O stroyenii 9 - (π - oksifenil) i 9 - (π - oksistiril) - akridinov).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3325-3331 (USSR).

ABSTRACT: The subject of the present publication is the investigation of the structure of 9 - (π - Oxyphenyl) - and 9 - (π - Oxystyryl) acridine. Disregarding the presence of phenolrests in them they are not soluble in alkalies. Both compounds are difficult to solve in concentrated hydrochloric acid and in organic acids and have a high melting point (> 340°), different from 9-phenylacridine, which, though without a hydroxile group, melts already at 184° and can comparatively easily be melted in concentrated hydrochloric acid and organic acids. As regards their characteristics both compounds remind us of 9-oxyacridine (see formulae). Based on the comparison with compounds which, as we know, have a phenol- and quinoid structure, the authors state that both acridines have oxystructure but not oxo- or betaine structure. The authors assume that the cause of the weak phenol- and alkaline characteristics

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On the Tautomery of Acridine Compounds. 79-12-29/43
On the Structure of 9 - π - Oxyphenyl) - and 9 - (π-Oxystyryl) Acridine.

of these compounds is the presence of the strong intermolecular hydrogen compounds. The newly synthetized N-methyl-9 (α-benzoquinon)-acridine is of unstable character,
There are 2 figures, 1 table, and 8 references, 2 of which are Slavic.

ASSOCIATION: Ural Polytechnic Institute (Ural'skiy politekhnicheskiy institut).

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1. Acridines - Isomerism

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POSTOVSKIY, I. YA.

SHEYNKER, Yu.N.; KUSHKIN, V.V.; POSTOVSKIY, I.Ya.

Tautomerism of some heterocyclic derivatives. Part 2: Infrared and ultraviolet spectra and the structure of the 2-amino derivatives of thiazole. Zhur.fiz.khim. 31 no.1:214-226 Ja '57. (MLRA 10:5)

1.Khimiko-farmatsevticheskiy institut im. S. Ordzhonikidze, Moskva i Ural'skiy politekhnicheskiy institut im. S.M. Kirova, Sverdlovsk.
(Thiazole--Spectra) (Tautomerism)

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POSTOVSKIY, I. Ya.

The structure of o-azoxy compounds of the benzene and naphthalene series—polarographic investigation. I. Ya. Postovskii and I. P. Vladimirtsev (S. M. Kirov Ural Politech. Inst., Sverdlovsk). *Zhur. Fiz. Khim.* 31, 452-9 (1957)(English summary).—The polarographic method was used to det. the structure of the compds. at the moment of their reduction in soln. The half-wave potentials depended on the mol. structure, including the presence and nature of the H bond. The half-wave potentials of 4-hydroxyazobenzene derivs. (I) and 1-phenylazo-4-naphthol derivs. (II) were of the same order of magnitude, while the o-azoxybenzene (III) and 1-phenylazo-2-naphthol (IV) derivs. differed greatly, IV being much more difficult to reduce than III. The difference in behavior of the o-azoxy compds. III and IV implied a much lower polarization of the O and N atoms in the rings with a H bond than in the compd. III. Consequently, the ring became stronger, and the reduction with the Hg drop electrode was more difficult. The substitution group in the phenol para and meta positions in I and II affected the half-wave potentials. The electron-donor OCH_3 group the para position of the phenyl group impeded reduction, while the acceptor group, SO_3H, helped the reduction of the azo compds. on the Hg electrode, as demanded by theory; in the meta position, the effect upon reduction was very slight. W. M. Sternberg

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SHEYNKER, Yu.N.; POSTOVSKIY, I.Ya.; VORONINA, N.M.; KUSHKIN, V.V.

Tautomerism of some derivative of heterocyclic compounds. Part 4: Spectra and structure of benzenesulfonamides and sulfanilamides of the thiazole and thiodiazole series [with summary in English]. Zhur.fiz.khim.31 no.8:1745-1755 Ag '57. (MIRA 10:12)

1. Khimiko-farmatsevticheskiy institut im. S.Ordzhonikidze, Moskva i Ural'skiy politekhnicheskiy institut im.S.M.Kirova, Sverdlovsk.
(Tauromerism) (Benzenesulfonamide--Spectra) (Sulfanilamide--Spectra)

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