Some Derivatives of Ethylbenzene and Tetralin

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IN SOME PREVIOUS WORK it was shown that a disulfonimide of acenaphthene rearranged to a disulfonamide of acenaphthylene (*1*). In an attempt to extend the scope of this prototropic shift a number of amides of ethylbenzene and tetralin were prepared and which we wish to record. Pure diimides were not obtained by oxidation of the diamide with lead tetraacetate.

EXPERIMENTAL

The derivatives of ethylbenzene (Table I) described were all prepared from *p*-nitroethylbenzene (*2*). The other amides were prepared from 1,2-dinitro-5,6,7,8-tetrahydronaphthalene (*3*).

LITERATURE CITED

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(3) Bamberger, E., Schieffelin, W.J., *Ber.* **22**, 1374 (1889).

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Table I. Derivatives of Ethylbenzene and Tetralin

Name	M.P.	Analysis	
p-Benzenesulfonamidoethylbenzene	82–83° from methanol	Calcd. for $C_{14}H_{15}NO_2S$: C, 64.36; H, 5.79; N, 5.36	Found: C, 64.50; H, 5.98; N, 5.54
3-Nitro-4-benzenesulfonamidoethylbenzene	77–78° from acetic acid	Calcd. for $C_{14}H_{14}N_2O_4S$: C, 54.90; H, 4.61; N, 9.15	Found: C, 54.85; H, 4.57; N, 8.89
3-Amino-4-benzenesulfonamidoethylbenzene hydrochloride	181–183° (darkens at 165°)	Calcd. for $C_{14}H_{17}N_2O_2SCl$: Neut. equiv. 312.75	Found: Neut. equiv. 311.3
3-Amino-4-benzenesulfonamidoethylbenzene	113–114° from methanol-water	Calcd. for $C_{14}H_{16}N_2O_2S$: C, 60.86; H, 5.84; N, 10.14	Found: C, 60.91; H, 5.69; N, 10.73
3,4-Dibenzenesulfoamidoethylbenzene	158.5–159.5 from aqueous methanol	Calcd. for $C_{20}H_{20}N_2O_4S_2$: C, 57.69; H, 4.84; N, 6.73 ν_{max}^{KBr} as cm.$^{-1}$: 3220 (NH), 1580, 1500, 1450, 1390, 1330 (SO_2), 1163 (SO_2), 1090, 945, 885, 755, 725, 688	Found: C, 57.84; H, 4.91; N, 6.77
1,2-Dibenzamido-5,6,7,8-tetrahydronaphthalene	254–255° dec. from isopropanol	Calcd. for $C_{24}H_{22}N_2O_2$: C, 77.81; H, 5.99; N, 7.56	Found: C, 77.69; H, 6.20; N, 7.68
1,2-Dibenzenesulfoamido-5,6,6,8-tetrahydronaphthalene	203° dec. from isopropanol	Calcd. for $C_{22}H_{22}N_2O_4S$: C, 59.72; H, 5.01; N, 6.33 ν_{max}^{KBr} as cm.$^{-1}$: 3500, 3400 (NH), 2870, 1620, 1491, 1450, 1370, 1355 (shoulder), 1340, 1165 (SO_2), 943, 896, 807, 754, 746, 719, 685, 647	Found: C, 59.85; H, 5.02; N, 6.27

The Synthesis of Some Heterocyclic Quaternary Amine Iodides

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PRELIMINARY WORK on the analysis of the infrared spectra of cyanine and merocyanine dyes indicated the necessity of first obtaining and analyzing the infrared spectra of the precursors of the dyes, namely, the heterocyclic quaternary amine iodides. This paper deals with the synthesis of the heterocyclic quaternary amine iodides; the infrared spectra of these compounds are discussed in another paper (*1*).

There are discrepancies in the literature with respect to the purity and melting points of some of the heterocyclic quaternary amine iodides. For example, some of these compounds were first synthesized many years ago and no analytical data were given. In other cases, two or more different melting points have been reported for the same compound. In this paper, a few of the quaternary salts reported have been synthesized for the first time. As a