Tetrahedron Letters No.6, pp. 477-478, 1969. Pergamon Press. Printed in Great Britain.

A CONVENIENT SYNTHESIS OF N-ARYLSULPHONYL SULPHOXIMINES

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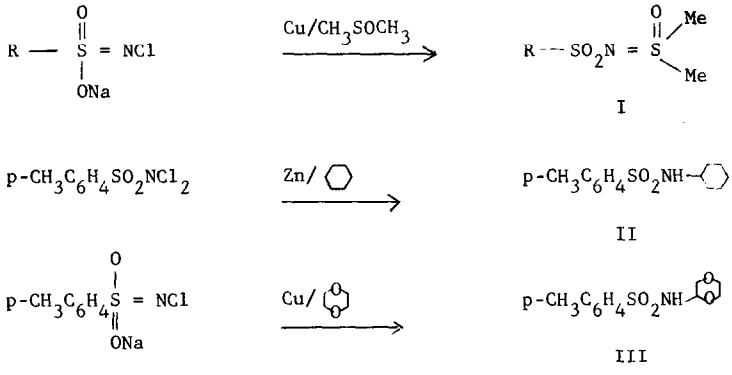
(Received in UK 12 December 1968; accepted for publication 6 January 1969)

The formation of N-benzenesulphonyldimethylsulphoximine (I, R=Ph) by the copper catalysed decomposition of benzenesulphonylazide in dimethylsulphoxide has been described[1]. The suggestion that this reaction involved the formation of a transient copper-sulphonyl nitrene and our interest in the chemistry of chloramines[2] caused us to investigate the possible generation of such a nitrene complex from chloramine T. We wish to report our preliminary results in this area.

Heating chloramine T in the presence of copper powder in dimethylsulphoxide at 80° for three hours furnished the sulphoximine (I, R=p-Ts), m.p. 170° in 80% yield. An analogous experiment omitting the copper catalyst gave the sulphoximine in 6% yield. Similar results were obtained with chloramine B, the sulphoximine (I, R=Ph), m.p. 115° being produced in 78% yield when copper powder was used. Recently Breslow[3] has reported the related reaction of dichloramine T in the presence of zinc dust to give N-cyclohexyl-p-toluenesulphonamide in poor yield. A nitrene intermediate was postulated for this novel insertion reaction. We have found that in the reaction of chloramine B with dimethylsulphoxide zinc dust does not exert any catalytic effect. Attempts to synthesise sulphoximines by the

reaction of dichloramine T, N,N-dichlorourethane[4] and N,N-dichloro, N^1,N^1-dimethylsulphamide[1.] with dimethylsulphoxide in the presence of copper powder were thwarted by the conflagrations which occurred when the chloramines were added to dimethylsulphoxide. The nature of this reaction is being investigated.

Evidence that the sulphoximines were formed via a copper-sulphonyl nitrene complex was provided by an insertion reaction with dioxan. On stirring chloramine T with an equivalent of copper powder in dioxan at 25° for forty hours, a 70% yield of the sulphonamide (III), m.p. 130° - 131° (from benzene) was obtained. Further reactions of this apparent, nitrene generating system with other substrates are being explored.



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