

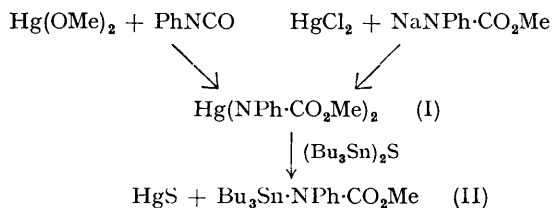
## N-Mercuricarbamates

By ALWYN G. DAVIES and G. J. D. PEDDLE

(William Ramsay and Ralph Forster Laboratories, University College, London, W.C.1)

THE addition of trialkyltin alkoxides to alkyl and aryl isocyanates to give *N*-stannylcarbammates (II) has been described, and it was suggested that reactions of this type would be found to be common to the alkoxides of many other metals.<sup>1</sup> We now report a similar reaction of mercuric alkoxides to give *N*-mercuricarbammates.

Mercury dimethoxide adds rapidly to phenyl isocyanate giving methyl *N*-mercuri-*N*-phenylcarbamate (I; 65% yield) as pale yellow crystals, m.p. 188—189° [ $\nu_{\text{C=O}}$  1708  $\text{cm}^{-1}$ , *cf.* 1655 and 1690  $\text{cm}^{-1}$  for  $\text{Bu}_3\text{Sn}\cdot\text{NPh}\cdot\text{CO}_2\text{Me}$  (II)]. Measurements of the apparent molecular weight show that some dissociation occurs in benzene and in chloroform at 25°.

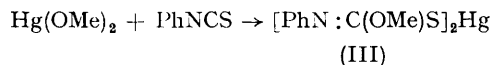


The same mercuricarbamate (I) can be prepared from mercuric chloride and the sodium derivative of methyl *N*-phenylcarbamate, and it reacts with

<sup>1</sup> Bloodworth and Davies, *Proc. Chem. Soc.*, 1963, 264.

bis(tributyltin) sulphide to give the stannylcarbamate (II), supporting the formulation (I).

Mercury dimethoxide similarly reacts with butyl isocyanate to give methyl *N*-butyl-*N*-mercuricarbamate (m.p. 84—86°; 47% yield). Phenyl isothiocyanate under the same conditions gives the adduct (III) as white crystals, m.p. 97—98°; this compound has two strong bands at 1617 and 1584  $\text{cm}^{-1}$ , suggesting the presence of the C=N rather than the C=S group (structure III).



Phenylmercury methoxide likewise adds exothermically to phenyl isocyanate giving (54% yield) methyl *N*-phenyl-*N*-phenylmercuricarbamate,  $\text{PhHg}\cdot\text{NPh}\cdot\text{CO}_2\text{Me}$ , m.p. 127.5—128.5°.

These mercuricarbammates are much less susceptible to hydrolysis than are the corresponding stannylcarbammates. Methyl *N*-butyl-*N*-mercuricarbamate decomposes slowly in the air, but the mercuric compounds derived from phenyl isocyanate and phenyl isothiocyanate were unchanged after 1 year.

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