

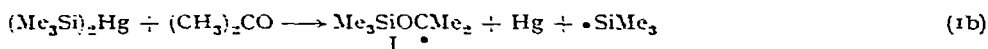
PRELIMINARY NOTES

The reaction of bis(trimethylsilyl)mercury with ketones

We have shown that pyrolysis or photolysis of bis(trimethylsilyl)mercury gives rise to trimethylsilyl radicals, which react with organic compounds to give a variety of products^{1,2}. In the thermal reactions of bis(trimethylsilyl)mercury with hydrocarbons or organic halides a substantial amount of hexamethyldisilane is always formed.

We now find that bis(trimethylsilyl)mercury reacts with ketones such as acetone, cyclohexanone, or acetophenone very much faster than with hydrocarbons, and the reaction products include virtually no hexamethyldisilane. The reaction with cyclohexanone only requires 15 minutes for completion at room temperature, compared with the two weeks at 195° required for the reaction with toluene. The products from the reaction with acetone include isopropoxytrimethylsilane and O,O-bis(trimethylsilyl)pinacol. Similar products appear to be formed from the other ketones.

The absence of hexamethyldisilane and the faster rate of decomposition of the mercurial are interesting. It suggests that a reaction of type 1b may be involved as well as the more usual 1a:



Reaction 1b and 2 both have the driving force of the production of a new Si-O bond. The radicals I may then dimerize or abstract hydrogen from the solvent to give the observed products.

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