

Synthesis of the First Example of an Optically Active Hexaorganoditin

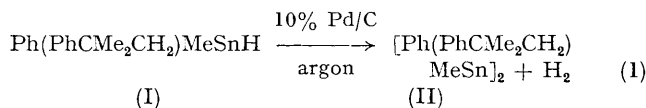
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Summary The first example of an optically active hexaorganoditin has been synthesized by the stereoselective reaction of the corresponding triorganotin hydride in the presence of palladium.

ONLY a few optically active organotin compounds have been made until now¹ either by classical resolution methods using an auxiliary chiral centre,² by asymmetric syntheses,^{3,4} or by stereoselective transformations of optically active organotin compounds.⁵

We report here the synthesis of the first example of an optically active hexaorganoditin compound (II)† ($[\alpha]_{365}^{30} -28.9$, c 6.38 in benzene) by a new type of stereoselective reaction of the optically active triorganotin hydride (I) ($[\alpha]_{365}^{30} +13.2^\circ$, c 6.38 in n-pentane) with 10% Pd/C under argon [reaction (1)]



Hexaorganoditin compounds are optically stable within the laboratory time-scale: the optical activity of (II) remained unchanged after several weeks.

Other reactions have been used to prepare hexaorganoditin compounds starting from optically active triorganotin hydrides but lead to a racemic reaction product. For instance, t-butylneophylphenyltin hydride ($[\alpha]_{365}^{30} -1.0^\circ$; c 24.4 in benzene) (neophyl = PhCMe₂CH₂) reacts with dimethylmercury and the corresponding racemic hexaorganoditin compound [Bu^t(PhCMe₂CH₂)PhSn]₂ is obtained.

Hexaorganoditin compounds can also be made starting from tetraorganotin compounds: methylneophylisopropyltrityltin ($[\alpha]_{365}^{30} +1.8^\circ$; c 6.82 in CCl₄) reacts with LiAlH₄ to give the corresponding racemic [Me(PhCMe₂CH₂)PrⁱSn]₂.

(Received, 21st October 1977; Com. 1096.)

† All the new compounds have been fully characterised by mass spectrometry and n.m.r. spectroscopy.

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⁴ M. Gielen and Y. Tondeur, *J. Organometallic Chem.*, 1977, **127**, C75.

⁵ M. Gielen and Y. Tondeur, *J. Organometallic Chem.*, 1977, **128**, C25; *Nouveau J. Chim.*, in the press.