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A Convenient Preparation of Symmetric and Asymmetric Trifluoromethylphosphines

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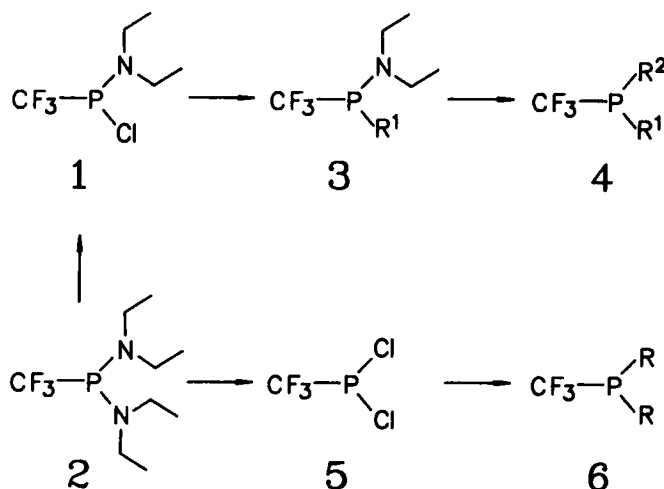
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A CONVENIENT PREPARATION OF SYMMETRIC AND ASYMMETRIC TRIFLUOROMETHYLPHOSPHINES

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Chloro(diethylamino)trifluoromethylphosphine (1), easily prepared from 2 by the method of W. Volbach and I. Ruppert [1], reacts with Grignard compounds to yield 3; the latter can be converted by HCl into the corresponding chloroderivatives, which upon repeated treatment with Grignard reagent yield symmetric and asymmetric trifluoromethylphosphines 4.

The aforementioned bis(diethylamino)trifluoromethylphosphine (2) serves also as starting material for the synthesis of symmetrically substituted trifluoromethylphosphines 6: reaction of 2 with HCl gives dichloro(trifluoromethyl)phosphine (5), from which the symmetrically substituted trifluoromethylphosphines 6 are obtained by reaction with two equivalents of organometallic reagents.



[1] W. Volbach and I. Ruppert, *Tetrahedron Lett.* 1983, 24, 5509.