A NEW METHOD FOR THE TRIFLUOROMETHYLATION OF AROMATIC COMPOUNDS

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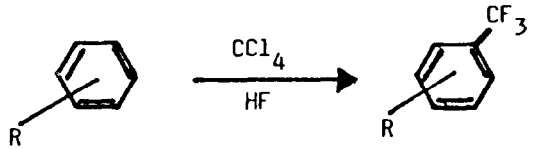
Trifluoromethyl groups attached to aromatic compounds are usually prepared by perchlorinating a methyl group and is subsequently perfluorinated by halogen exchange using a fluorinating agent. In addition to this method, which is also used in industry, there are also a number of different synthesis methods which are however only of limited importance owing to the costly reagents required. The disadvantage of the above-mentioned two-step synthesis lies in the restricted range of application since many of the substituents attached to the aromatic compound hinder the chlorination of the methyl group or they are themselves changed (e. g. methyl, bromine ...).

By means of a new one-step process, the trifluoromethylation of aromatic compounds is made possible by using the reagent HF/CCl_4.



R=H, alkyl, aryl, halogen, phenoxy

The anhydrous hydrofluoric acid acts as a Friedel-Crafts-catalyst, solvent and fluorinating agent. The range of application of the reaction is discussed. Apart from indicating the influence of the concentration of the reaction components, temperature and pressure, details are also given concerning catalysts and side reactions.