Tetra Butyl Ammonium Fluoride: TBAF

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Tetra butyl ammonium fluoride (TBAF) has been used widely as a reagent for the efficient cleavage of various silyl protecting groups from O-silylated nucleosides, and pyrophosphates, as well as N-silyl, and S-silyl derivatives. These reactions are carried out under very mild conditions in excellent yields.

**Preparation:** Aqueous HF is passed through an amberlite IRA 410 OH column, followed by an aqueous solution of tetra-butylammonium bromide. After the resin is washed with H₂O, the combined H₂O fractions are repeatedly evaporated until no water is present. TBAF is collected as an oil in quantitative yield.

### Abstracts

**Silyl ethers can be converted to esters in one pot when they are treated with TBAF, followed by exposure to acyl chlorides or anhydride in the presence of a base.**

![Chemical structure](image1)

**The anions generated in situ by desilylation of silylacetylenes, allysilanes, propargylsilanes and other silane derivatives can undergo nucleophilic addition to ketones and aldehydes.**

![Chemical structure](image2)

**N-tert-Butyloxy carbonyl groups can be removed by using TBAF in refluxing THF.**

![Chemical structure](image3)

Under phase transfer conditions, selective mono- and dialkylation of malononitrile have been achieved by using neat TBAF with potassium carbonate or potassium tert-butoxide.

![Chemical structure](image4)
References