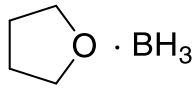
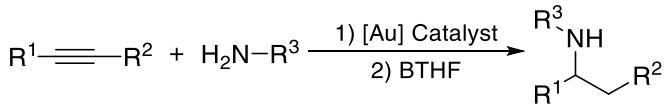
Catalog # 05-0175 CALLERY™ Borane tetrahydrofuran, 1M in tetrahydrofuran, BTHF



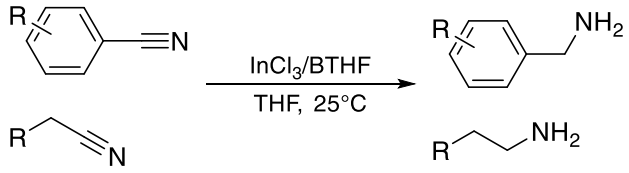
Borane-tetrahydrofuran complex (BTHF) is a valuable reagent for the reduction of functional groups and for hydroboration reactions with carbon-carbon double and triple bonds. Functional groups that are readily reduced by BTHF include aldehyde, ketone, carboxylic acid, amide, oxime, imine, and nitrile. The carboxylic acid group is reduced at a faster rate than most groups including non-conjugated alkene. Conjugated α,β-unsaturated carboxylic acids give saturated alcohols as the major products [1, Review].

Technical Notes:

1. Used in Au-catalyzed intermolecular hydroaminations with less-reactive internal alkynes and unprotected aliphatic amines giving excellent yields with low catalyst loading.
2. Reductant used in In-catalyzed reduction of aromatic and aliphatic nitriles to primary amines.
3. Dopant/Reducing agent used for generation of B-doped graphene nanoplatelets (borane-reduced graphene oxide, B-rG-O) using a solution process.
4. Used for the reduction of functionalized tertiary phosphine oxides with BH_3.
5. Component of *N*-heterocyclic carbene borane organocatalyst used for asymmetric reduction of tert-butanesulfinyl ketimines.
6. Catalyst used for the hydroboration of alkynes and alkenes.
7. Used for the modification of alkoxy-functionalized silicon QD surfaces via ligand exchange of the alkoxy-surface groups with alkyl or alkenyl-surface groups.
8. Ligand component for Cu-catalyzed transfer hydrogenation of *N*-heteroaromatics with an oxazaborolidine complex.
9. Used in Ir-catalyzed photocatalytic C–F bond borylation of polyfluoroarenes with $NHC{\cdot}BH_3$.
10. Reductant used in functionalization of [2.2]paracyclophanes via a reductive sulfanylation reaction.



Tech Note (1)
Ref. (2)



Tech Note (2)
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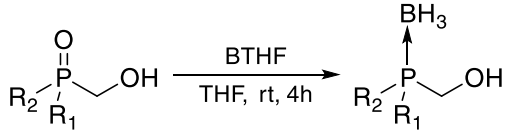

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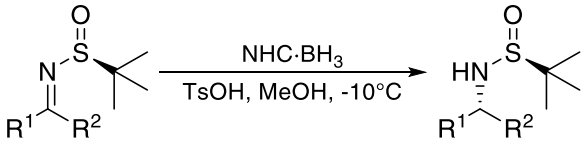

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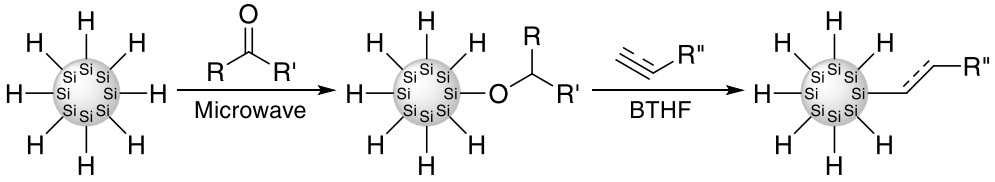

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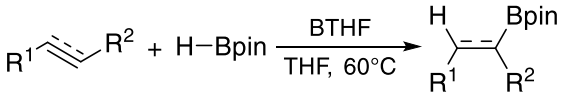

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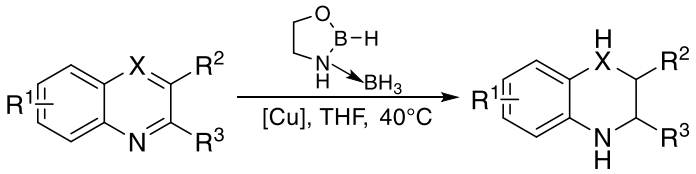

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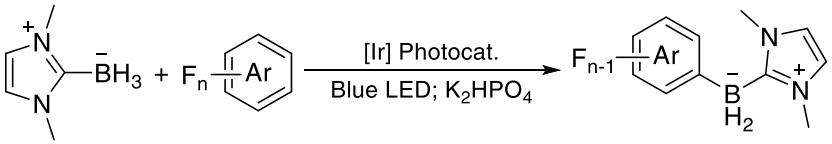

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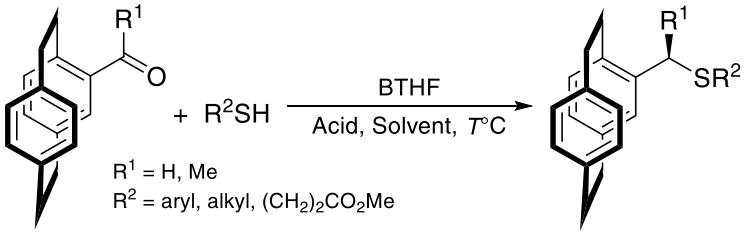

Tech Note (10)
Ref. (11)

References:

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