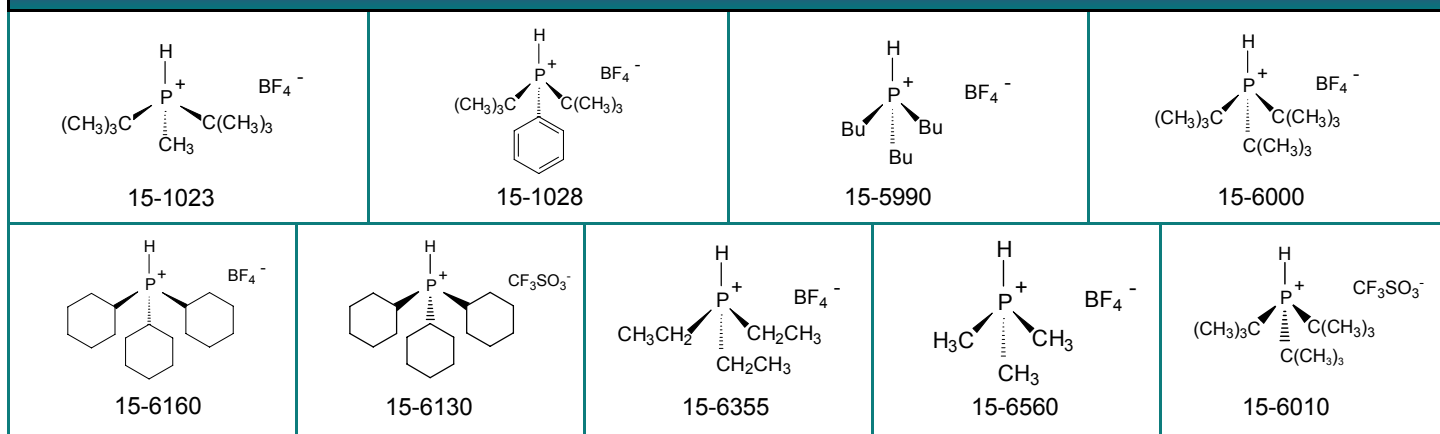


# STREM Air-stable, Non-pyrophoric Phosphine Ligand Precursors

metals • inorganics • organometallics • catalysts • ligands • custom synthesis • cGMP facilities • nanomaterials

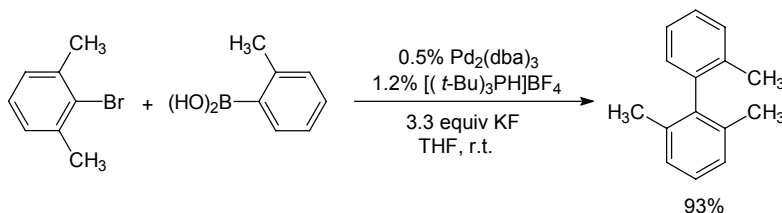


Tri-t-butyl and tri-n-butylphosphonium tetrafluoroborates, developed by Professor Gregory Fu's group, are remarkably air- and moisture-stable compounds compared to the malodorous and pyrophoric parent phosphines. Furthermore, Professor Fu has demonstrated that the phosphonium salts can be used as direct replacements for the neat phosphine in a variety of stoichiometric and catalytic processes. The free phosphine can be easily generated in situ by adding a Brønsted base. Based on this simple, yet powerful strategy, Strem is pleased to provide researchers with an assortment of trialkylphosphonium tetrafluoroborates.

15-1023	Di-t-butylmethylphosphonium tetrafluoroborate, 99% (C <sub>4</sub> H <sub>9</sub> ) <sub>2</sub> (CH <sub>3</sub> )PH <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 248.05; white powdr.	1g 5g
15-1028	Di-t-butylphenylphosphonium tetrafluoroborate, 97% [(CH <sub>3</sub> ) <sub>3</sub> C] <sub>2</sub> (C <sub>6</sub> H <sub>5</sub> )PH <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 310.12	1g 5g
15-5990	Tri-n-butylphosphonium tetrafluoroborate, 99% [113978-91-9] [(C <sub>4</sub> H <sub>9</sub> ) <sub>3</sub> PH] <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 290.13; white powdr.; m.p. 51-52°	1g 5g
15-6000	Tri-t-butylphosphonium tetrafluoroborate, 99% [131274-22-1] [(C <sub>4</sub> H <sub>9</sub> ) <sub>3</sub> PH] <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 290.13; white powdr.; m.p. 261° (dec.)	1g 5g
15-6010	Tri-t-butylphosphonium trifluoromethanesulfonate, 99% Stabiphos T [1106696-25-6] [(C <sub>4</sub> H <sub>9</sub> ) <sub>3</sub> PH] <sup>+</sup> CF <sub>3</sub> SO <sub>3</sub> <sup>-</sup> ; FW: 352.40; white solid	1g 5g
15-6160	Tricyclohexylphosphonium tetrafluoroborate, 99% [58656-04-5] [(C <sub>6</sub> H <sub>11</sub> ) <sub>3</sub> PH] <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 368.24; white powdr.	1g 5g
15-6130	Tricyclohexylphosphonium trifluoromethanesulfonate, 99% Stabiphos [952649-12-6] [(C <sub>6</sub> H <sub>11</sub> ) <sub>3</sub> PH] <sup>+</sup> CF <sub>3</sub> SO <sub>3</sub> <sup>-</sup> ; FW: 430.51; white solid	1g 5g
15-6355	Triethylphosphonium tetrafluoroborate, 99% [(C <sub>2</sub> H <sub>5</sub> ) <sub>3</sub> PH] <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 205.97; white powdr. <i>hygroscopic</i>	1g 5g
15-6560	Trimethylphosphonium tetrafluoroborate, 99% [154358-50-6] (CH <sub>3</sub> ) <sub>3</sub> PH <sup>+</sup> BF <sub>4</sub> <sup>-</sup> ; FW: 163.89; white powdr. <i>hygroscopic</i>	1g 5g

#### Technical Notes:

#### Suzuki Cross-couplings



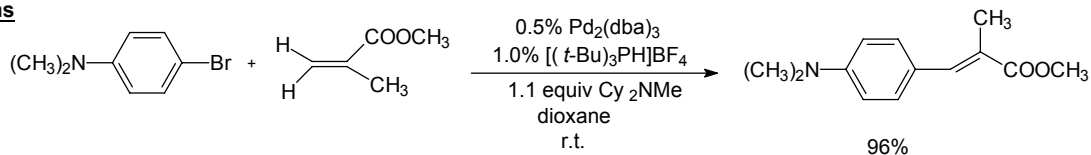
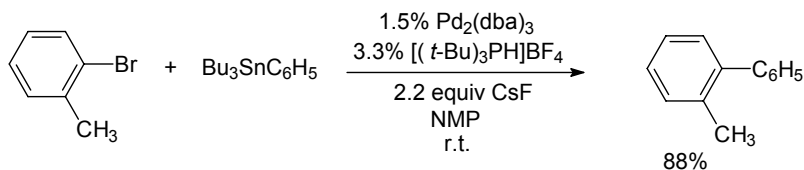
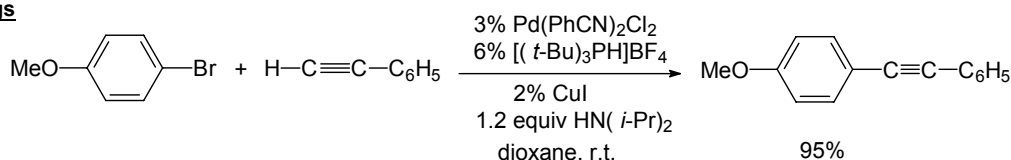
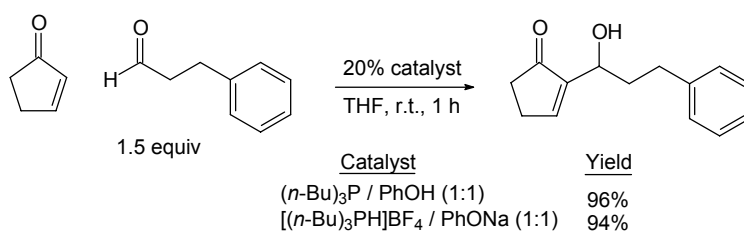
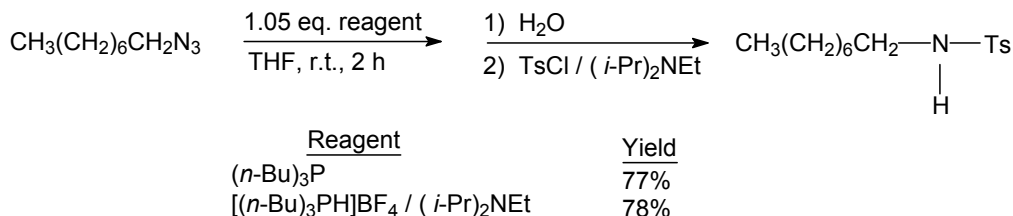
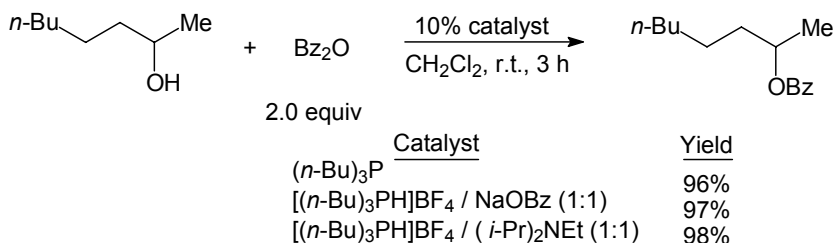
Visit [www.strem.com](http://www.strem.com) for new product information and searchable catalog.

**Strem Chemicals, Inc.**  
7 Mulliken Way  
Newburyport, MA 01950-4098  
U.S.A.  
Tel.: (978) 499-1600  
Fax: (978) 465-3104  
Email: [info@strem.com](mailto:info@strem.com)

**Strem Chemicals, Inc.**  
15, rue de l'Atome  
Zone Industrielle  
67800 BISCHHEIM France  
Tel.: (33) 03 88 62 52 60  
Fax: (33) 03 88 62 26 81  
Email: [info.europe@strem.com](mailto:info.europe@strem.com)

**Strem Chemicals, Inc.**  
Postfach 1215  
77672 KEHL  
Germany  
Telefon: 0 78 51/ 7 58 79  
Email: [info.europe@strem.com](mailto:info.europe@strem.com)

**Strem Chemicals UK**  
48 High Street  
Orwell, Royston  
England SG8 5QN  
Tel.: 01223 207430  
Fax: 01223 208138  
Email: [stremchemicals.uk@btinternet.com](mailto:stremchemicals.uk@btinternet.com)

**Heck Reactions****Stille Cross-couplings****Sonogashira couplings****Baylis-Hillman Reactions****Azide Reductions****Acylation of alcohols by anhydrides**

Reference:

1. *Organic Letters*, **2001**, 3, 4295.

Visit [www.strem.com](http://www.strem.com) for new product information and searchable catalog.

**Strem Chemicals, Inc.**  
7 Mulliken Way  
Newburyport, MA 01950-4098  
U.S.A.  
Tel.: (978) 499-1600  
Fax: (978) 465-3104  
Email: [info@strem.com](mailto:info@strem.com)

**Strem Chemicals, Inc.**  
15, rue de l'Atome  
Zone Industrielle  
67800 BISCHHEIM France  
Tel.: (33) 03 88 62 52 60  
Fax: (33) 03 88 62 26 81  
Email: [info.europe@strem.com](mailto:info.europe@strem.com)

**Strem Chemicals, Inc.**  
Postfach 1215  
77672 KEHL  
Germany  
Telefon: 0 78 51/ 7 58 79  
Email: [info.europe@strem.com](mailto:info.europe@strem.com)

**Strem Chemicals UK**  
48 High Street  
Orwell, Royston  
England SG8 5QN  
Tel.: 01223 207430  
Fax: 01223 208138  
Email: [stremchemicals.uk@btinternet.com](mailto:stremchemicals.uk@btinternet.com)