# **Organotrifluoroborates**

PdCl<sub>2</sub>(dppf).CH<sub>2</sub>Cl<sub>2</sub>

Et<sub>3</sub>N, PrOH, reflux

Direct cross-coupling of potassium vinyltrifluoroborate (stock no. L17970) with aryl halides and triflates, catalyzed by [1,1'-Bis(diphenylphosphino) ferrocene]palladium(II) chloride (stock no. 41225).

New synthetic methods are being explored to improve and expand on carbon-carbon coupling techniques. One of these employs organotrifluoroborates, which as reagents tolerant of air and moisture, allow the reactions to take place under relatively mild and non-toxic conditions. Organotrifluoroborates also allow the carbon-boron bond to remain intact through multiple steps, providing more flexibility as to when the cross-coupling reaction can take place. Potassium organotrifluoroborates feature a low molecular weight and a reliable stoichiometry. In addition to C-C coupling, potassium organotrifluoroborates are used in a variety of other reactions, such as 1,2- and 1,4-addition, C—O and C—N bond formation, and halogenation, and allylation.

Below is a listing of organotrifluoroborates available from Alfa Aesar's standard catalog offering. We are continuously adding new products.

#### H28304

Potassium benzofurazan-5trifluoroborate, 95%

#### H28102

Potassium 5-formylthiophene-2-trifluoroborate, 97% [1025113-78-3]



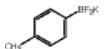
#### L17568

Potassium phenyltrifluoroborate, 98% [153766-81-5]



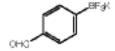
## L17968

Potassium 2-formylphenyltrifluoroborate, 97% [192863-39-1]



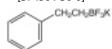
## L17604

Potassium 4-methylphenyltrifluoroborate, 98% [216434-82-1]



#### L17969

Potassium 4-formylphenyltrifluoroborate, 97% [374564-36-0]



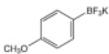
## H25930

Potassium 2-phenylethyltrifluoroborate, 98% [329976-74-1]



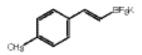
#### L17655

Potassium 4-fluorophenyltrifluoroborate, 95% [192863-35-7]



## H27384

Potassium 4-methoxyphenyltrifluoroborate, 95% [192863-36-8]



## L17973

Potassium 4-methyl-beta-styryltrifluoroborate, 95% [219718-86-2]



#### L17967

Potassium 4-bromophenyltrifluoroborate, 97% [374564-35-9]



#### H28758

Potassium 4-iodophenyltrifluoroborate, 96% [912350-00-6]



## L17970

Potassium vinyltrifluoroborate, 97% [13682-77-4]



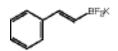
## L17966

Potassium 3-bromophenyltrifluoroborate, 97% [374564-34-8]



## H29009

Potassium 3-iodophenyltrifluoroborate, 96%



#### L17971

Potassium trans-beta-styryltrifluoroborate, 98% [201852-49-5]

## H28125

Potassium 3-formylphenyltrifluoroborate, 97% [871231-44-6]

Molander, Gary A.; Febo-Ayala, Wilma; Ortega-Guerra, Montserrat, 'Facile Synthesis of Highly Functionalized Ethyltrifluoroborates', *Journal of Organic Chemistry*, 2008, 73(15), 6000-6002.

Darses, Sylvain; Genet, Jean-Pierre, 'Potassium Organotrifluoroborates: New Perspectives in Organic Synthesis', *Chemical Reviews* (Washington, DC, United Sates), 2008, 108(1), 288-325.

Stefani, Helio A.; Cella, Rodrigo; Vieira, Adriano S., 'Recent Advances in Organotrifluoroborates chemistry', *Tetrahedron*, 2007, 63(18), 3623-3658.