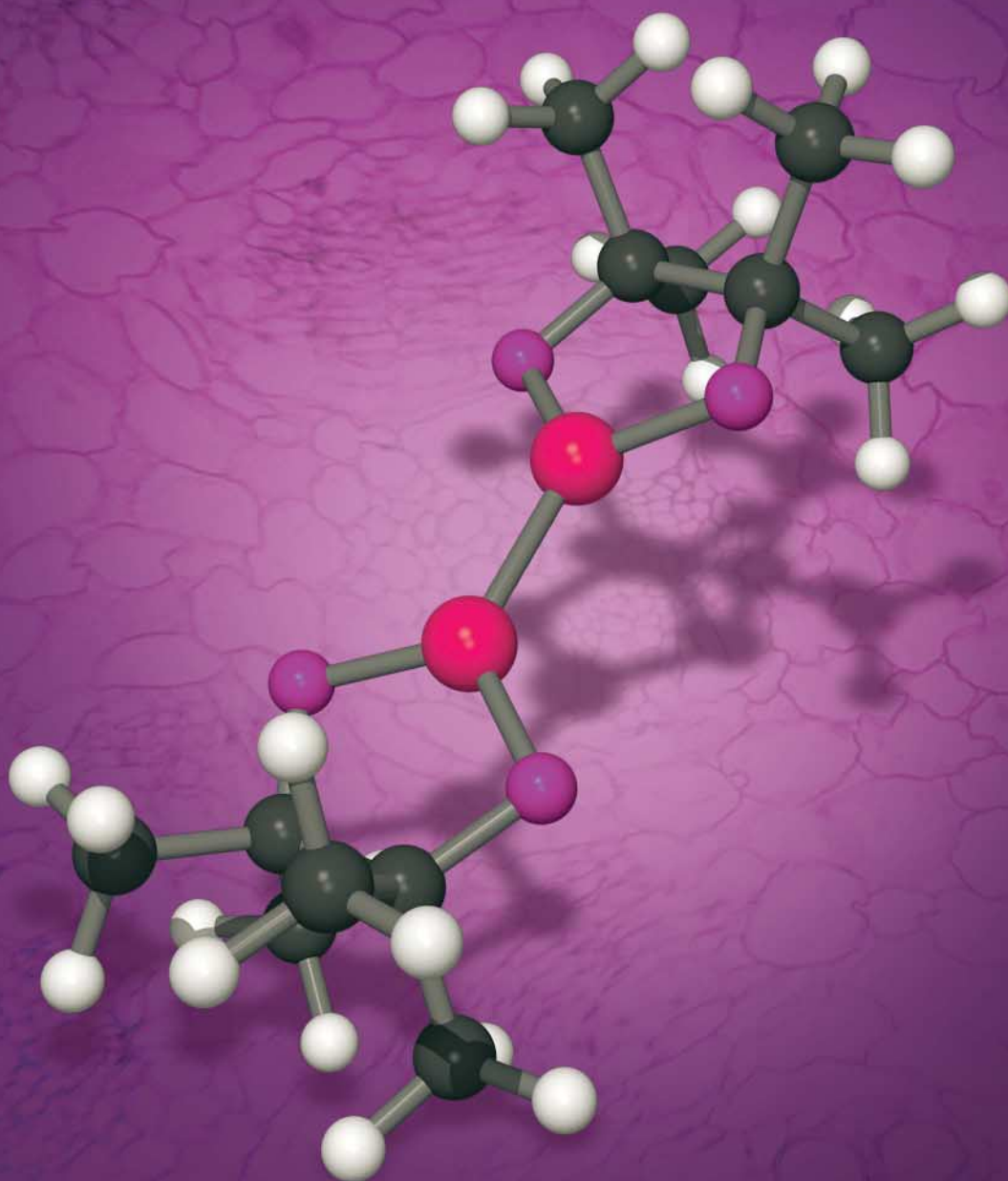




ChemFiles

REAGENTS FOR

Suzuki Coupling



Vol. 3 No. 3

Boronic Acids

Boronic Acid Esters

Diboron Esters

Potassium
Trifluoroborates

Pd-Catalysts with
Perfluoroalkyl Ponytails

OSVB, Volume 3:
Suzuki Coupling

Bis(pinacolato)
diboron in BULK

sigma-aldrich.com

 **ALDRICH**[®]

Suzuki Coupling Reagents

This brochure contains a comprehensive selection of boronic acids, boronic acid esters, diboron esters, and transition-metal catalysts useful for the Suzuki coupling reaction. New offerings are added


monthly; if you don't see the material you need for your research, please call us at 1-800-231-8327 (USA) or your local office. Your new product suggestions, as always, are welcome and appreciated.

Boronic Acids

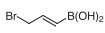
Most boronic acids readily undergo dehydration reactions to give a cyclic (trimer) anhydride. Our selection of boronic acids may contain varying amounts of this cyclic anhydride.

Fortunately, the acid and the anhydride work equally well in the Suzuki coupling reactions; thus, the two forms are generally regarded as equivalent.

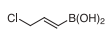
Methylboronic acid

16,533-6  1g
 CH_3BO_2 5g


trans-2-Bromomethylvinylboronic acid

55,656-4  1g
 $\text{C}_3\text{H}_6\text{BBrO}_2$ 5g
 (NEW)


trans-2-Chloromethylvinylboronic acid

55,659-9  1g
 $\text{C}_3\text{H}_6\text{BClO}_2$ 5g
 (NEW)

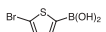
cis-Propenylboronic acid

57,217-9  1g
 $\text{C}_3\text{H}_7\text{BO}_2$ 5g
 (NEW)

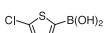
trans-Propenylboronic acid

57,663-8  1g
 $\text{C}_3\text{H}_7\text{BO}_2$ 5g
 (NEW)


5-Bromothiophene-2-boronic acid

55,768-4  5g
 $\text{C}_4\text{H}_4\text{BBrO}_2\text{S}$


5-Chloro-2-thiopheneboronic acid

49,993-5  5g
 $\text{C}_4\text{H}_4\text{BClO}_2\text{S}$

2-Thiopheneboronic acid

43,683-6  1g
 $\text{C}_4\text{H}_5\text{BO}_2\text{S}$ 5g


3-Thiopheneboronic acid

43,684-4  1g
 $\text{C}_4\text{H}_5\text{BO}_2\text{S}$ 5g

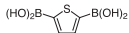
2-Furanboronic acid

46,491-0  1g
 $\text{C}_4\text{H}_5\text{BO}_3$ 10g


3-Furanboronic acid

51,216-8  1g
 $\text{C}_4\text{H}_5\text{BO}_3$


2,5-Thiophenediboronic acid

47,031-7  5g
 $\text{C}_4\text{H}_6\text{B}_2\text{O}_4\text{S}$


Butylboronic acid

16,324-4  1g
 $\text{C}_4\text{H}_{11}\text{BO}_2$ 5g
 25g


(2-Methylpropyl)boronic acid

34,622-5  1g
 $\text{C}_4\text{H}_{11}\text{BO}_2$ 5g

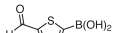
2-Formyl-3-thiopheneboronic acid

49,990-0  1g
 $\text{C}_5\text{H}_5\text{BO}_3\text{S}$ 5g


3-Formyl-2-thiopheneboronic acid

49,991-9  1g
 $\text{C}_5\text{H}_5\text{BO}_3\text{S}$ 5g

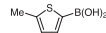
5-Formyl-2-thiopheneboronic acid

51,405-5  1g
 $\text{C}_5\text{H}_5\text{BO}_3\text{S}$ 5g

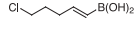
4-Methyl-3-thiopheneboronic acid

54,239-3  1g
 $\text{C}_5\text{H}_7\text{BO}_2\text{S}$

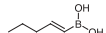
5-Methyl-2-thiopheneboronic acid

51,219-2  1g
 $\text{C}_5\text{H}_7\text{BO}_2\text{S}$ 5g

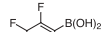
(E)-5-Chloro-1-penteneboronic acid

56,279-3  1g
 $\text{C}_5\text{H}_{10}\text{BClO}_2$ 10g
 (NEW)

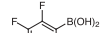
1-Pentenylboronic acid

57,845-2  1g
 $\text{C}_5\text{H}_{11}\text{BO}_2$ 5g
 (NEW)

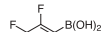
Pentafluorophenylboronic acid

46,509-7  5g
 $\text{C}_6\text{H}_2\text{BF}_5\text{O}_2$

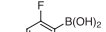
2,3,4-Trifluorophenylboronic acid

52,408-5  5g
 $\text{C}_6\text{H}_4\text{BF}_3\text{O}_2$

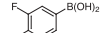
2,3,6-Trifluorophenylboronic acid

52,409-3  5g
 $\text{C}_6\text{H}_4\text{BF}_3\text{O}_2$

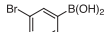
2,4,6-Trifluorophenylboronic acid

52,410-7  1g
 $\text{C}_6\text{H}_4\text{BF}_3\text{O}_2$ 5g


3,4,5-Trifluorophenylboronic acid

52,470-0  1g
 $\text{C}_6\text{H}_4\text{BF}_3\text{O}_2$


3,5-Dibromophenylboronic acid

49,950-1  1g
 $\text{C}_6\text{H}_5\text{BBr}_2\text{O}_2$ 5g


2-Chloro-6-fluorophenylboronic acid

56,607-1
 $C_6H_5BClFO_2$
 1g
 5g


3-Chloro-4-fluorophenylboronic acid

51,223-0
 $C_6H_5BClFO_2$
 5g


2,3-Dichlorophenylboronic acid

51,404-7
 $C_6H_5BCl_2O_2$
 5g
 25g


2,4-Dichlorophenylboronic acid

52,138-8
 $C_6H_5BCl_2O_2$
 5g


2,5-Dichlorophenylboronic acid

51,231-1
 $C_6H_5BCl_2O_2$
 5g


3,4-Dichlorophenylboronic acid

47,191-7
 $C_6H_5BCl_2O_2$
 5g
 25g


3,5-Dichlorophenylboronic acid

44,520-7
 $C_6H_5BCl_2O_2$
 5g
 25g


2,3-Difluorophenylboronic acid

51,403-9
 $C_6H_5BF_2O_2$
 5g
 25g


2,4-Difluorophenylboronic acid

46,507-0
 $C_6H_5BF_2O_2$
 5g
 25g


2,5-Difluorophenylboronic acid

51,402-0
 $C_6H_5BF_2O_2$
 5g
 25g


2,6-Difluorophenylboronic acid

47,079-1
 $C_6H_5BF_2O_2$
 1g
 10g


3,4-Difluorophenylboronic acid

46,508-9
 $C_6H_5BF_2O_2$
 5g
 25g


3,5-Difluorophenylboronic acid

47,192-5
 $C_6H_5BF_2O_2$
 5g
 25g


2-Bromophenylboronic acid

47,380-4
 $C_6H_6BBrO_2$
 5g
 25g


3-Bromophenylboronic acid

44,162-7
 $C_6H_6BBrO_2$
 1g
 5g


4-Bromophenylboronic acid

B7,595-6
 $C_6H_6BBrO_2$
 1g
 5g


2-Chlorophenylboronic acid

44,521-5
 $C_6H_6BClO_2$
 1g
 5g


3-Chlorophenylboronic acid

41,752-1
 $C_6H_6BClO_2$
 1g
 10g


4-Chlorophenylboronic acid

41,754-8
 $C_6H_6BClO_2$
 1g
 10g
 25g


2-Fluorophenylboronic acid

44,522-3
 $C_6H_6BFO_2$
 1g
 10g


3-Fluorophenylboronic acid

44,164-3
 $C_6H_6BFO_2$
 1g
 10g


4-Fluorophenylboronic acid

41,755-6
 $C_6H_6BFO_2$
 1g
 5g
 25g


3-Iodophenylboronic acid

44,167-8
 $C_6H_6BIO_2$
 5g
 25g


4-Iodophenylboronic acid

47,193-3
 $C_6H_6BIO_2$
 5g
 25g


3-Nitrophenylboronic acid

32,510-4
 $C_6H_6BNO_4$
 1g
 5g


Phenylboronic acid

P2,000-9
 $C_6H_7BO_2$
 10g
 50g
 250g


4-Mercaptophenylboronic acid

52,401-8
 $C_6H_7BO_2S$
 1g
 5g


3-Hydroxyphenylboronic acid

52,396-8
 $C_6H_7BO_3$
 1g
 10g


4-Hydroxyphenylboronic acid

52,397-6
 $C_6H_7BO_3$
 1g
 5g


5-Acetyl-2-thiopheneboronic acid

49,992-7
 $C_6H_7BO_3S$
 5g
 25g


1,4-Phenylenebisboronic acid

41,713-0
 $C_6H_8B_2O_4$
 5g
 25g


3-Aminophenylboronic acid hydrochloride

41,070-5
 $C_6H_9BClNO_2$
 1g
 5g

3-Aminophenylboronic acid monohydrate

28,751-2
 $C_6H_{10}BNO_3$
 1g
 5g


3-Aminophenylboronic acid hemisulfate

A7,175-1
 $C_6H_{10}BNO_6S$
 5g
 25g


Cyclohexylboronic acid

55,658-0
 $C_6H_{13}BO_2$
 5g
 10g

trans-1-hexen-1-ylboronic acid

52,101-9
 $C_6H_{13}BO_2$
 1g
 (NEW)

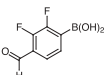
trans-2-tert-butylvinylboronic acid

55,655-6
 $C_6H_{13}BO_2$
 1g
 5g
 (NEW)




Ready to scale up? For larger quantities, please contact Sigma-Aldrich
 Fine Chemicals at 1-800-336-9719 (USA) or your local office.


2,3-Difluoro-4-formylphenylboronic acid

57,137-7
C₇H₅BF₂O₃
 1g
5g
(NEW)

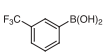
2-Fluoro-5-(trifluoromethyl)phenylboronic acid

55,818-4
C₇H₅BF₄O₂
 1g
(NEW)

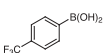
2-(Trifluoromethyl)phenylboronic acid

44,519-3
C₇H₆BF₃O₂
 1g
10g

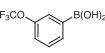
3-(Trifluoromethyl)phenylboronic acid

43,203-2
C₇H₆BF₃O₂
 1g
5g

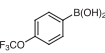
4-(Trifluoromethyl)phenylboronic acid

43,932-0
C₇H₆BF₃O₂
 1g
5g


3-(Trifluoromethoxy)phenylboronic acid

51,012-2
C₇H₆BF₃O₃
 5g

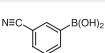
4-(Trifluoromethoxy)phenylboronic acid

51,013-0
C₇H₆BF₃O₃
 5g

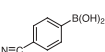
2-Cyanophenylboronic acid

52,139-6
C₇H₆BNO₂
 1g
5g

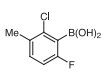
3-Cyanophenylboronic acid

51,301-6
C₇H₆BNO₂
 1g
5g


4-Cyanophenylboronic acid

52,141-8
C₇H₆BNO₂
 1g
10g


2-Chloro-6-fluoro-3-methylphenylboronic acid

55,725-0
C₇H₇BClFO₂
 5g
(NEW)

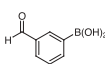
2-Chloro-6-fluoro-5-methylphenylboronic acid

55,726-9
C₇H₇BClFO₂
 5g
(NEW)

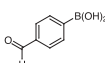
2-Formylphenylboronic acid

43,195-8
C₇H₇BO₃
 1g
5g

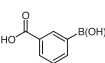
3-Formylphenylboronic acid

44,165-1
C₇H₇BO₃
 1g
5g
25g

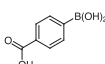
4-Formylphenylboronic acid

43,196-6
C₇H₇BO₃
 1g
5g
25g

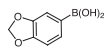
3-Carboxyphenylboronic acid

45,676-4
C₇H₇BO₄
 1g
10g

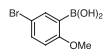
4-Carboxyphenylboronic acid

45,677-2
C₇H₇BO₄
 1g
10g


3,4-(Methylenedioxy)phenylboronic acid

49,999-4
C₇H₇BO₄
 1g
5g

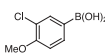
5-Bromo-2-methoxyphenylboronic acid

51,270-2
C₇H₈BBrO₃
 5g


2-Chloro-6-methoxyphenylboronic acid

51,275-3
C₇H₈BClO₃
 1g
5g


3-Chloro-4-methoxyphenylboronic acid

56,448-6
C₇H₈BClO₃
 1g
5g
(NEW)


5-Chloro-2-methoxyphenylboronic acid

51,224-9
C₇H₈BClO₃
 5g

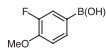
4-Fluoro-3-methylphenylboronic acid

48,356-7
C₇H₈BFO₂
 5g
25g


2-Fluoro-6-methoxyphenylboronic acid

51,276-1
C₇H₈BFO₃
 1g
5g


3-Fluoro-4-methoxyphenylboronic acid

56,403-6
C₇H₈BFO₃
 1g
5g
(NEW)


5-Fluoro-2-methoxyphenylboronic acid

48,354-0
C₇H₈BFO₃
 5g
25g


4-Methyl-3-nitrophenylboronic acid

52,147-7
C₇H₈BNO₄
 1g
5g


o-Tolylboronic acid

39,360-6
C₇H₉BO₂
 1g
5g
25g


m-Tolylboronic acid

39,361-4
C₇H₉BO₂
 1g
5g


p-Tolylboronic acid

39,362-2
C₇H₉BO₂
 1g
10g

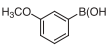
4-(Methylthio)phenylboronic acid

45,680-2
C₇H₉BO₂S
 1g
5g
25g

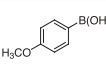
2-Methoxyphenylboronic acid

44,523-1
C₇H₉BO₃
 1g
5g

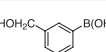
3-Methoxyphenylboronic acid

44,168-6
C₇H₉BO₃
 1g
10g

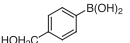
4-Methoxyphenylboronic acid

41,759-9
C₇H₉BO₃
 1g
5g
25g

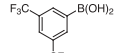
3-(Hydroxymethyl)phenylboronic acid

51,283-4
C₇H₉BO₃
 1g
10g

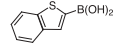
4-(Hydroxymethyl)phenylboronic acid

51,233-8  1g
 C₇H₉BO₃ 10g

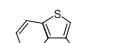
3,5-Bis(trifluoromethyl)phenylboronic acid

47,107-0  5g
 C₈H₅BF₆O₂ 25g

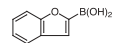
Thianaphthene-2-boronic acid

49,997-8  5g
 C₈H₇BO₂S 25g

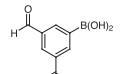
Thianaphthene-3-boronic acid

51,211-7  5g
 C₈H₇BO₂S 25g

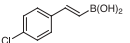
2-Benzofuranboronic acid

49,994-3  5g
 C₈H₇BO₃ 25g

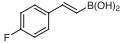
3,5-Diformylphenylboronic acid

56,748-5  1g
 C₈H₇BO₄ 5g
 (NEW)

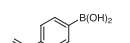
trans-2-(4-Chlorophenyl)vinylboronic acid

52,356-9  1g
 C₈H₈BClO₂ 10g

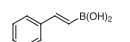
trans-2-(4-Fluorophenyl)vinylboronic acid

51,897-2  1g
 C₈H₈BFO₂ 10g

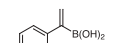
4-Vinylphenylboronic acid

41,758-0  1g
 C₈H₉BO₂ 5g

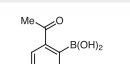
trans-2-Phenylvinylboronic acid

47,379-0  5g
 C₈H₉BO₂ 25g

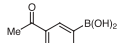
α-Phenylvinylboronic acid

57,135-0  1g
 C₈H₉BO₂ 5g
 (NEW)

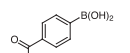
2-Acetylphenylboronic acid

47,080-5  5g
 C₈H₉BO₃ 25g

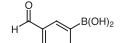
3-Acetylphenylboronic acid

47,081-3  5g
 C₈H₉BO₃ 25g

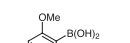
4-Acetylphenylboronic acid

47,082-1  5g
 C₈H₉BO₃ 25g

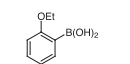
3-Formyl-4-methoxyphenylboronic acid

51,286-9  5g
 C₈H₉BO₄ 25g

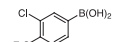
5-Formyl-2-methoxyphenylboronic acid

51,225-7  5g
 C₈H₉BO₄

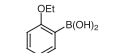
5-Bromo-2-ethoxyphenylboronic acid

51,282-6  1g
 C₈H₁₀BBrO₃ 5g

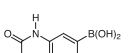
3-Chloro-4-ethoxyphenylboronic acid

56,447-8  1g
 C₈H₁₀BClO₃ 5g
 (NEW)

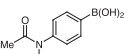
5-Chloro-2-ethoxyphenylboronic acid

54,254-7  5g
 C₈H₁₀BClO₃

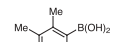
3-Acetamidophenylboronic acid

56,601-2  1g
 C₈H₁₀BNO₃ 1g
 (NEW)

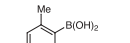
4-Acetamidophenylboronic acid

56,580-6  1g
 C₈H₁₀BNO₃ 5g
 (NEW)

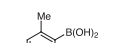
2,3-Dimethylphenylboronic acid

48,350-8  5g
 C₈H₁₁BO₂ 25g

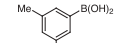
2,5-Dimethylphenylboronic acid

48,351-6  5g
 C₈H₁₁BO₂ 25g

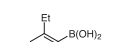
2,6-Dimethylphenylboronic acid

48,006-1  5g
 C₈H₁₁BO₂ 25g

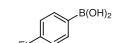
3,5-Dimethylphenylboronic acid

48,008-8  5g
 C₈H₁₁BO₂ 25g

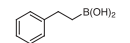
2-Ethylphenylboronic acid

52,152-3  10g
 C₈H₁₁BO₂

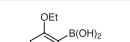
4-Ethylphenylboronic acid

49,953-6  5g
 C₈H₁₁BO₂ 25g

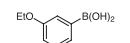
Phenethylboronic acid

58,842-3  1g
 C₈H₁₁BO₂ 10g
 (NEW)

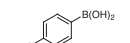
2-Ethoxyphenylboronic acid

45,552-0  1g
 C₈H₁₁BO₃ 10g

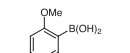
3-Ethoxyphenylboronic acid

44,163-5  1g
 C₈H₁₁BO₃ 5g

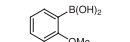
4-Ethoxyphenylboronic acid

45,553-9  1g
 C₈H₁₁BO₃ 10g

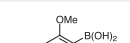
2-Methoxy-5-methylphenylboronic acid

56,750-7  1g
 C₈H₁₁BO₃ 5g

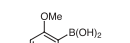
2,3-Dimethoxyphenylboronic acid

55,773-0  5g
 C₈H₁₁BO₄

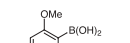
2,4-Dimethoxyphenylboronic acid

48,348-6  1g
 C₈H₁₁BO₄ 10g

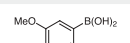
2,5-Dimethoxyphenylboronic acid

48,349-4  5g
 C₈H₁₁BO₄ 25g

2,6-Dimethoxyphenylboronic acid

48,009-6  5g
 C₈H₁₁BO₄ 25g

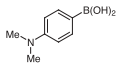
3,4-Dimethoxyphenylboronic acid

48,011-8  5g
 C₈H₁₁BO₄ 25g

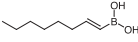


Ready to scale up? For larger quantities, please contact Sigma-Aldrich
 Fine Chemicals at 1-800-336-9719 (USA) or your local office.

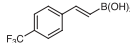
4-(Dimethylamino)phenylboronic acid

48,353-2
C₈H₁₂BNO₂  5g

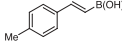
trans-1-Octen-1-ylboronic acid

52,102-7
C₈H₁₇BO₂  1g
10g

trans-2-[4-(Trifluoromethyl)phenyl]-vinylboronic acid

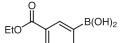
51,902-2
C₉H₈BF₃O₂  1g
5g

trans-2-(4-Methylphenyl)vinylboronic acid

56,813-9
C₉H₁₁BO₂  1g
5g

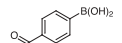
NEW

3-Ethoxycarbonylphenylboronic acid

57,465-1
C₉H₁₁BO₄  1g
5g

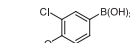
NEW

4-Ethoxycarbonylphenylboronic acid

57,464-3
C₉H₁₁BO₄  1g
5g

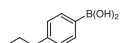
NEW

3-Chloro-4-propoxyphenylboronic acid

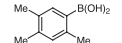
56,445-1
C₉H₁₂BClO₃  1g
5g

NEW

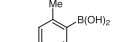
4-Propylphenylboronic acid

52,150-7
C₉H₁₃BO₂  10g

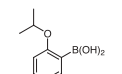
2,4,5-Trimethylphenylboronic acid

54,232-6
C₉H₁₃BO₂  5g

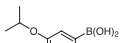
2,4,6-Trimethylphenylboronic acid

54,231-8
C₉H₁₃BO₂  5g

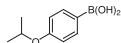
2-Isopropoxyphenylboronic acid

54,246-6
C₉H₁₃BO₃  1g
10g

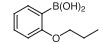
3-Isopropoxyphenylboronic acid

54,245-8
C₉H₁₃BO₃  1g
10g

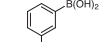
4-Isopropoxyphenylboronic acid

54,247-4
C₉H₁₃BO₃  1g
10g

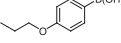
2-Propoxyphenylboronic acid

55,772-2
C₉H₁₃BO₃  5g

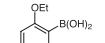
3-Propoxyphenylboronic acid

55,771-4
C₉H₁₃BO₃  5g

4-Propoxyphenylboronic acid

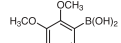
55,770-6
C₉H₁₃BO₃  5g

2-Ethoxy-5-methylphenylboronic acid

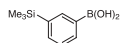
56,749-3
C₉H₁₃BO₃  1g
5g

NEW

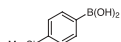
2,3,4-Trimethoxyphenylboronic acid

51,228-1
C₉H₁₃BO₅  5g

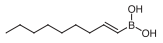
3-(Trimethylsilyl)phenylboronic acid

52,366-6
C₉H₁₅BO₂Si  1g
5g

4-(Trimethylsilyl)phenylboronic acid

52,367-4
C₉H₁₅BO₂Si  1g
5g

trans-1-Nonenylboronic acid


57,939-4
C₉H₁₉BO₂  1g

NEW


1,1'-Ferrocenediboronic acid

45,555-5
C₁₀H₄B₂FeO₄  5g

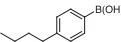
1-Naphthaleneboronic acid

N,25-7
C₁₀H₉BO₂  5g
25g

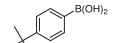
2-Naphthaleneboronic acid

48,013-4
C₁₀H₉BO₂  5g
25g

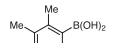
4-Butylphenylboronic acid

52,149-3
C₁₀H₁₅BO₂  1g
5g

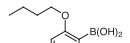
4-tert-Butylphenylboronic acid

48,005-3
C₁₀H₁₅BO₂  5g
25g

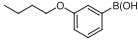
2,3,5,6-Tetramethylphenylboronic acid

52,151-5
C₁₀H₁₅BO₂  5g
25g

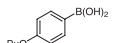
2-Butoxyphenylboronic acid

54,248-2
C₁₀H₁₅BO₃  1g
10g


3-Butoxyphenylboronic acid

54,249-0
C₁₀H₁₅BO₃  1g
10g

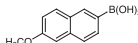
4-Butoxyphenylboronic acid

54,250-4
C₁₀H₁₅BO₃  1g
10g

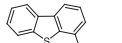
4-Methyl-1-naphthaleneboronic acid

52,145-0
C₁₁H₁₁BO₂  10g

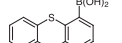
6-Methoxy-2-naphthaleneboronic acid

52,189-2
C₁₁H₁₁BO₃  5g

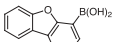
4-Dibenzothiopheneboronic acid

49,998-6
C₁₂H₉BO₂S  1g
5g

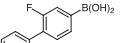
Thianthrene-1-boronic acid

51,221-4
C₁₂H₉BO₂S₂  5g


4-Dibenzofuranboronic acid

49,995-1
C₁₂H₉BO₃  5g

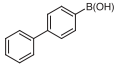
2-Fluoro-4-biphenylboronic acid

51,210-9
C₁₂H₁₀BFO₂  5g

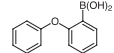
2-Biphenylboronic acid

54,220-2
C₁₂H₁₁BO₂  5g

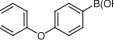
4-Biphenylboronic acid

48,345-1
C₁₂H₁₁BO₂  5g
25g

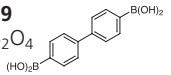
2-Phenoxyphenylboronic acid

52,148-5
C₁₂H₁₁BO₃  10g

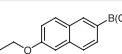
4-Phenoxyphenylboronic acid

48,014-2
C₁₂H₁₁BO₃  5g
25g

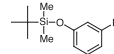
4,4'-Biphenyldiboronic acid

45,679-9
C₁₂H₁₂B₂O₄  500mg

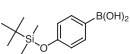
6-Ethoxy-2-naphthaleneboronic acid

52,190-6
C₁₂H₁₃BO₃  5g

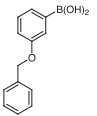
3-(tert-Butyldimethylsilyoxy)phenylboronic acid

52,403-4
C₁₂H₂₁BO₃Si  5g

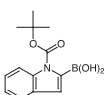
4-(tert-Butyldimethylsilyoxy)phenylboronic acid

52,404-2
C₁₂H₂₁BO₃Si  1g
5g

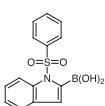
3-Benzyloxyphenylboronic acid

52,633-9
C₁₃H₁₃BO₃  5g
25g

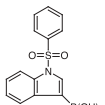
1-(tert-Butoxycarbonyl)indole-2-boronic acid

56,233-5
C₁₃H₁₆BNO₄  1g
NEW

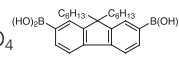
1-(Phenylsulfonyl)-2-indoleboronic acid

56,386-2
C₁₄H₁₂BNO₄S  1g
NEW

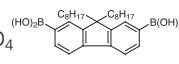
1-(Phenylsulfonyl)-3-indoleboronic acid

56,387-0
C₁₄H₁₂BNO₄S  1g
NEW

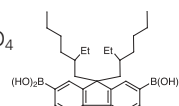
9,9-Dihexylfluorene-2,7-diboronic acid

56,633-0
C₂₅H₃₆B₂O₄  1g
5g
NEW

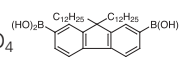
9,9-Dioctylfluorene-2,7-diboronic acid

56,936-4
C₂₉H₄₄B₂O₄  1g
5g
NEW

9,9-Di(2'-ethylhexyl)fluorene-2,7-diboronic acid

57,153-9
C₂₉H₄₄B₂O₄  1g
5g
NEW

9,9-Didodecylfluorene-2,7-diboronic acid

57,149-0
C₃₇H₆₀B₂O₄  1g
5g
NEW

PROFESSOR SUZUKI'S contributions to organoborane chemistry involve the discovery and development of new synthetic methodologies using organoboron compounds. The formation of organic radicals from organoboranes in the presence of catalytic amounts of oxygen was first discovered in the course of cooperative work with Professor Brown's research group.



Akira Suzuki

Professor Suzuki was also instrumental in the utilization of organoboron compounds as carbanions in synthesis. Organoboranes are also useful as a source of carbocations under electrochemical conditions, although a limited number of examples have been reported. More recent work by Suzuki and coworkers revolves around palladium catalyzed cross-coupling reactions of various organoboron compounds with a number of organic electrophiles in the presence of bases. This reaction has become known as the Suzuki Coupling and is the focus of this book.

**ORGANIC
SYNTHESIS
VIA BORANES
VOLUME 3:
SUZUKI COUPLING**

Akira Suzuki & Herbert C. Brown
Z51,430-6

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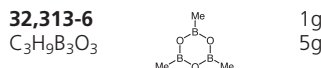
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Boronic Acid Esters

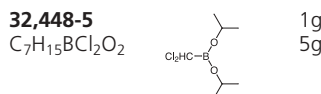
The synthesis of biaryl compounds via the Suzuki coupling reaction has become more commonplace now that many arylboronic acids are readily available. Several years ago, Miyaoura et al. demonstrated the utility of cyclic pinacol esters of arylboronic

acids in Suzuki coupling reactions. Aldrich is pleased to offer the following boronic acid esters as part of a growing line of reagents used in the Suzuki coupling reaction.

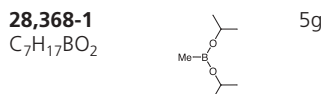
Trimethylboroxine



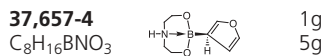
Dichloromethyldiisopropoxyborane



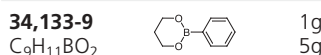
Diisopropoxymethylborane



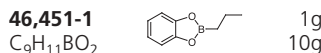
Diethanolamine (3*R*)-(+)-tetrahydrofuran-ylboronate



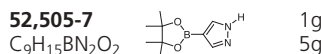
2-Phenyl-1,3,2-dioxaborinane



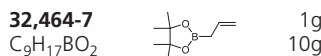
2-Propyl-1,3,2-benzodioxaborole



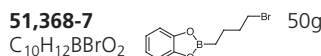
4,4,5,5-tetramethyl-2-(1*H*-pyrazol-4-yl)-1,3,2-dioxaborolane



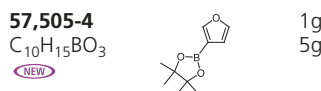
2-Allyl-4,4,5,5-tetramethyl-1,3,2-dioxaborolane



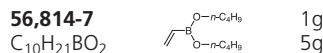
2-(4-Bromobutyl)-1,3,2-benzodioxaborole



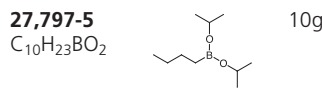
3-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)furan



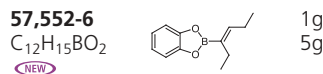
Vinylboronic acid dibutyl ester



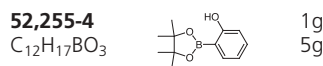
Butyldiisopropoxyborane



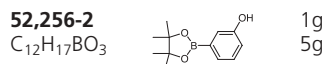
2-(*cis*-1-Ethyl-1-butenyl)benzo(1,3,2)-dioxaborole



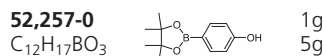
2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenol



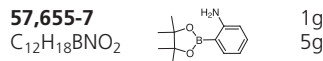
3-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenol



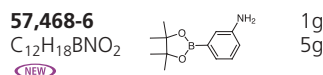
4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenol



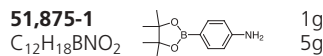
2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)aniline



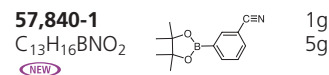
3-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)aniline



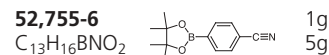
4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)aniline



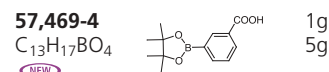
3-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)benzonitrile



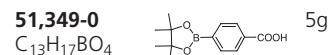
4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)benzonitrile



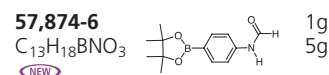
3-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)benzoic acid



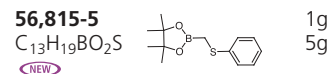
4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)benzoic acid



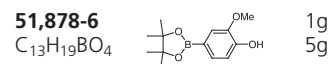
N-[4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]formamide



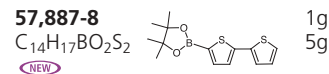
4,4,5,5-Tetramethyl-2-phenylsulfanyl-methyl-(1,3,2)dioxaborolane



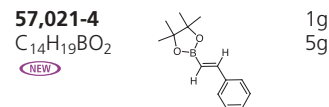
2-Methoxy-4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenol



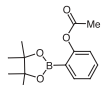
5-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)-2,2'-bithiophene



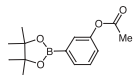
trans-2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)styrene



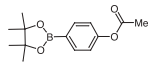
2-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl acetate

57,018-4
C₁₄H₁₉BO₄  1g
5g
NEW

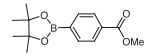
3-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl acetate

57,019-2
C₁₄H₁₉BO₄  1g
5g
NEW

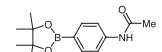
4-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl acetate

57,020-6
C₁₄H₁₉BO₄  1g
5g
NEW

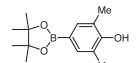
Methyl 4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)benzoate

59,476-8
C₁₄H₁₉BO₄  1g
5g
NEW

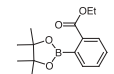
4'-(4,4,5,5-Tetramethyl-1,3,2-dioxaborolan-2-yl)acetanilide

51,877-8
C₁₄H₂₀BNO₃  1g
5g

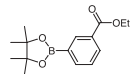
2,6-Dimethyl-4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenol

51,879-4
C₁₄H₂₁BO₃  1g
5g

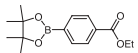
Ethyl 2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)benzoate

57,016-8
C₁₅H₂₁BO₄  1g
5g
NEW

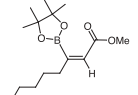
Ethyl 3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)benzoate

52,754-8
C₁₅H₂₁BO₄  1g
5g

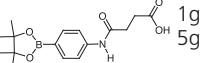
Ethyl 4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)benzoate

52,756-4
C₁₅H₂₁BO₄  1g
5g

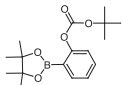
Methyl 3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-2-octenoate

54,062-5
C₁₅H₂₇BO₄  1g

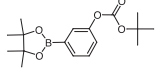
N-[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]succinamic acid

57,876-2
C₁₆H₂₂BNO₅  1g
5g
NEW

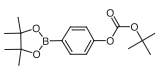
tert-Butyl 2-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenylcarbonate

57,022-2
C₁₇H₂₅BO₅  1g
5g
NEW

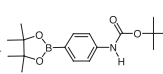
tert-Butyl 3-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl carbonate

56,582-2
C₁₇H₂₅BO₅  1g
5g
NEW

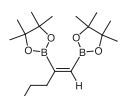
tert-Butyl 4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl carbonate

56,594-6
C₁₇H₂₅BO₅  1g
5g
NEW

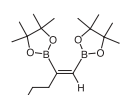
tert-Butyl N-[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]carbamate

56,235-1
C₁₇H₂₅BNO₄  1g
5g
NEW

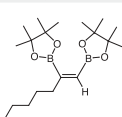
1-[cis-1,2-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)]pentene

52,990-7
C₁₇H₃₂B₂O₄  1g
5g

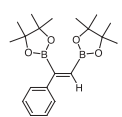
1-[cis-1,2-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)]hexene

52,760-2
C₁₈H₃₄B₂O₄  1g
5g

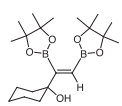
1-[cis-1,2-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)]heptene

52,989-3
C₁₉H₃₆B₂O₄  1g
5g

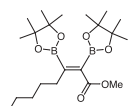
cis-1,2-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)styrene

52,757-2
C₂₀H₃₀B₂O₄  1g
5g

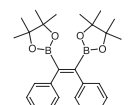
1-[cis-1,2-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)]vinylcyclohexan-1-ol

52,761-0
C₂₀H₃₆B₂O₅  1g
5g

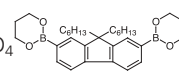
Methyl[cis-2,3-bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)]-2-octenoate

52,759-9
C₂₁H₃₈B₂O₆  1g
5g

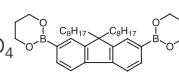
cis-1,2-Bis(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)stilbene

52,758-0
C₂₆H₃₄B₂O₄  1g
5g

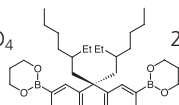
9,9-Dihexylfluorene-2,7-bis(trimethyl-ene borate)

56,668-3
C₃₁H₄₄B₂O₄  1g
5g
NEW

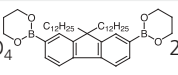
9,9-Dioctylfluorene-2,7-bis(trimethyl-ene borate)

56,935-6
C₃₅H₅₂B₂O₄  1g
5g
NEW

9,9-Di(2'-ethylhexyl)fluorene-2,7-bis(trimethyl-ene borate), 0.5M solution in toluene

57,207-1
C₃₅H₅₂B₂O₄  5mL
25mL
NEW

9,9-Didodecylfluorene-2,7-bis(trimethyl-eneborate), 0.5M solution in toluene

57,206-3
C₄₃H₆₈B₂O₄  5mL
25mL
NEW



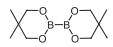
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Diboron Esters

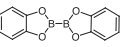
The following diboron esters are versatile reagents that couple with organic triflates and halides to give the corresponding boronic esters, which are readily converted to arylboronic acids. This route and the subsequent Suzuki coupling reaction can be run under mild conditions, thus permitting the use of cyano-

ester-, carbonyl-, and nitro-substituted aryl rings. The wide variety of arylboronic acids available via these diboron esters also makes this class of compounds suitable for solid-phase combinatorial studies.

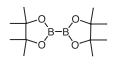
Bis(neopentyl glycolato)diboron

51,880-8
 $C_{10}H_{20}B_2O_4$  1g
 5g

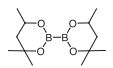
Bis(catecholato)diboron

47,328-6
 $C_{12}H_8B_2O_4$  1g
 5g

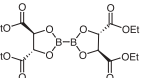
Bis(pinacolato)diboron

47,329-4
 $C_{12}H_{24}B_2O_4$  1g
 5g
 25g
 100g

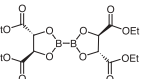
Bis(hexylene glycolato)diboron

52,568-5
 $C_{12}H_{24}B_2O_4$  1g
 5g

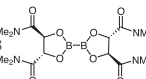
Bis(diethyl-D-tartrate glycolato)diboron

52,715-7
 $C_{16}H_{24}B_2O_{12}$  1g
 5g

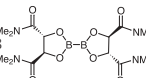
Bis(diethyl-L-tartrate glycolato)diboron

52,716-5
 $C_{16}H_{24}B_2O_{12}$  1g
 5g

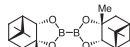
Bis(N,N,N',N'-tetramethyl-D-tartaramide glycolato)diboron

52,720-3
 $C_{16}H_{28}B_2N_4O_8$  1g
 5g

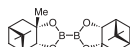
Bis(N,N,N',N'-tetramethyl-L-tartaramide glycolato)diboron

52,723-8
 $C_{16}H_{28}B_2N_4O_8$  1g
 5g

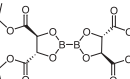
Bis[(+)-pinanediolato]diboron

52,713-0
 $C_{20}H_{32}B_2O_4$  1g
 5g

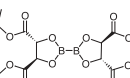
Bis[(-)-pinanediolato]diboron

52,714-9
 $C_{20}H_{32}B_2O_4$  1g
 5g

Bis(diisopropyl-D-tartrate glycolato)diboron

52,717-3
 $C_{20}H_{32}B_2O_{12}$  1g
 5g

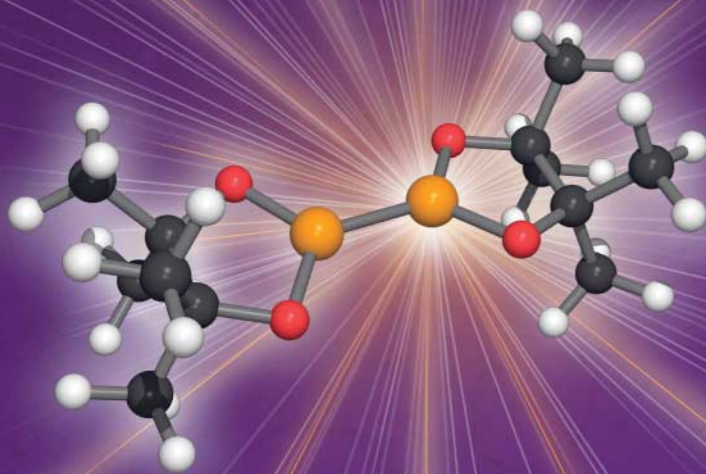
Bis(diisopropyl-L-tartrate glycolato)diboron

52,718-1
 $C_{20}H_{32}B_2O_{12}$  1g
 5g

Bis(pinacolato)diboron

Product No. 47,329-4

CAS # 73183-34-3



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- High Quality
- Research and Commercial Scale Capacity
- Superior Value

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


Potassium Trifluoroborates


Alkyl, aryl, and alkenyl trifluoroborate salts are compelling alternatives to boronic acids in Suzuki coupling and in rhodium catalyzed carbon-carbon bond forming reactions. These salts are air and water stable, and in many cases eliminate the need to add either additional ligands or base for cross coupling.

Whereas the boronic acids readily form cyclic anhydrides, these new salts do not form unwanted side products. In many cases, the trifluoroborate salt is more efficient and tolerant to functional groups than the corresponding boronic acids.


Potassium 3-thiophenetrifluoroborate

57,157-1
C₄H₃BF₃KS
 1g
5g


Potassium 4-bromophenyltrifluoroborate

57,154-7
C₆H₄BBrF₃K
 1g
5g


Potassium 2-bromophenyltrifluoroborate

57,610-7
C₆H₄BBBrF₃K
 1g
5g

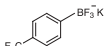
Potassium 3-nitrophenyltrifluoroborate

57,159-8
C₆H₄BF₃KNO₂
 1g
5g

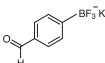
Potassium phenyltrifluoroborate

56,395-1
C₆H₅BF₃K
 1g
5g

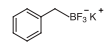
Potassium 4-(trifluoromethyl)phenyltrifluoroborate

57,613-1
C₇H₄BF₆K
 1g
5g

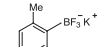
Potassium 4-formylphenyltrifluoroborate

57,609-3
C₇H₅BF₃KO
 1g
5g

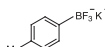
Potassium benzyltrifluoroborate

56,305-6
C₇H₇BF₃K
 1g
5g

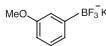
Potassium o-tolyltrifluoroborate

57,612-3
C₇H₇BF₃K
 1g
5g

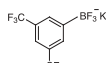
Potassium p-tolyltrifluoroborate

57,155-5
C₇H₇BF₃K
 1g
5g

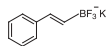
Potassium 3-methoxyphenyltrifluoroborate

57,611-5
C₇H₇BF₃KO
 1g
5g

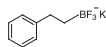
Potassium 3,5-bis(trifluoromethyl)phenyltrifluoroborate

57,156-3
C₈H₃BF₉K
 1g
5g

Potassium trans-styryltrifluoroborate

57,615-8
C₈H₇BF₃K
 1g
5g

Potassium phenethyltrifluoroborate

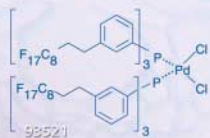
56,309-9
C₈H₇BF₃K
 1g
5g

Pd-Catalysts with Perfluoroalkyl Ponytails:

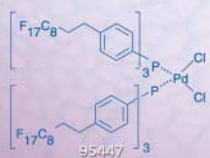
Suzuki couplings under fluorous biphasic conditions

The new *Fluka Fluorous Biphasic Catalysis, Kit I: C-C-Coupling* contains perfluorotagged Pd-catalysts and solvents for up to 10 different catalytic reactions under fluorous biphasic conditions. To get acquainted with this innovative FBS-technology our kit provides detailed descriptions of procedures for two C-C-coupling reactions (Suzuki and Stille coupling), all substrates and reagents necessary for these two model reactions, and 8 additional preparations. Analytical methods and spectra are also given as references. FBS technology allows the catalyst to be easily recovered and to be used for further syntheses.

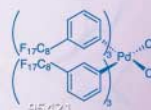
67456 Fluorous Biphasic Catalysis, Kit I: C-C-Coupling



93521 Bis-[tris(3-(1H,1H,2H,2H-perfluorodecyl)-phenyl)-phosphine]palladium(II) dichloride
≥90% (AAS) C₉₆H₄₈Cl₂F₁₀₂P₂Pd M_r 3378.55 100 mg; 500 mg



95447 Bis-[tris(4-(1H,1H,2H,2H-perfluorodecyl)-phenyl)-phosphine]palladium(II) dichloride
≥80% (AAS) C₉₆H₄₈Cl₂F₁₀₂P₂Pd M_r 3378.55 100 mg; 500 mg



95421 Bis-[tris(3-(heptadecafluorooctyl)-phenyl)-phosphine]palladium(II) dichloride
≥95% (³¹P-NMR) C₈₄H₂₄Cl₂F₁₀₂P₂Pd M_r 3210 100 mg; 500 mg



88508 Bis-[tris(4-(heptadecafluorooctyl)-phenyl)-phosphine]palladium(II) dichloride
≥95% (³¹P-NMR) C₈₄H₂₄Cl₂F₁₀₂P₂Pd M_r 3210 100 mg; 500 mg

Lit.: [1] Schneider, S. and Bannwarth, W. *Helv. Chem. Acta* 2001, 84, 1. [2] Schneider, S. and Bannwarth, W. *Angew. Chem., Int. Ed. Engl.* 2000, 39, 4142. For an introduction to fluorous chemistry please refer to: Gladysz, J.A. and Curran, D.P. *Tetrahedron* 2002, 58, 3823.



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