

Alkali Silica Gels

Lithium Aminoborohydride
(LAB) Reagents

NIMBA-Stabilized BH_3 -THF

Sodium triacetoxyborohydride

2-Picoline-borane

2-Methyl-CBS-oxazaborolidine

Red-Al[®]

Chloroborane-dioxane
Complexes

Other Reagents for Reduction

NEW! Alkali Silica Gels — Powerful Reducing Agents

Alkali metals have long been used in synthetic chemistry as reducing agents, but their pyrophoric nature has often prevented their use in larger-scale reactions. Alkali metals react violently with water, produce copious amounts of hydrogen gas that can ignite, and result in strongly alkaline solutions. The neutral metals usually need to be stored under vacuum or in an inert liquid to protect them before use. Typically, synthetic chemists have used these metals in reactions as dispersions, as solutions in liquid ammonia, or on inert supports to avoid some of these concerns. Sodium has been commonly employed as sodium mercury amalgam. However, a need still exists to have alkali metals and alloys available in a form that may be easily handled without a significant loss in metal reactivity.

SiGNa Chemistry has recently developed and reported¹ a series of alkali metals and alloys absorbed into silica gel to create stable, free-flowing powders with varying reactivities (based on the intended application). These powders are an attractive alternative to other reagents for desulfurizations, dehalogenations (as Wurtz coupling reactions), and Birch reductions. Many of these reactions can be performed at room temperature, eliminating high pressure and high temperature systems.

SiGNa's alkali silica gels are classified into three categories. Stage 0 powders are air-sensitive, but can easily be used in continuous-flow applications. Stage I powders are moisture-sensitive, nonpyrophoric, and air-stable; they can be stored for months without any change in reducing capacity. Stage II powders are easily handled in an open ambient environment, but readily react with water to produce stoichiometric yields of pure hydrogen gas. Stage II powders function well as a hydrogen source or drying agent.

Anthracene undergoes Birch reduction to form 9,10-dihydroanthracene using a 2-mL Pasteur pipette containing either Stage 0 or Stage I alkali silica gel mixed with regular silica gel (**Scheme 1**). The reaction was carried out in 5 minutes (elution time) and formed the product in >99% purity.

The Wurtz reduction of benzyl chloride can be completed using Stage 0 or I materials by a chromatographic process or using Stage II material in a batch process. By either method, bibenzyl is formed as the only product (**Scheme 2**). This methodology can be applied to the dehalogenation of both aromatic and aliphatic substrates.

Normally, alkali metal-mediated desulfurizations in hydrocarbon solvents require high temperatures. However, the desulfurization of dibenzothiophene in THF to form biphenyl using Stage 0 or I materials in continuous or batch processes can be accomplished at room temperature (**Scheme 3**). The methodology was also successfully applied to the more difficult desulfurizations of 4,6-dimethyldibenzothiophene and diphenyl sulfide.

Sigma-Aldrich is pleased to announce an agreement with SiGNa Chemistry to distribute research quantities of these powerful alkali silica gels for research applications.

Na-K silica gel (K₂Na)

660140-5G	5 g
660140-25G	25 g

Na-K silica gel (Na₂K)

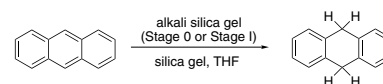
660159-5G	5 g
660159-25G	25 g

Sodium silica gel Stage I

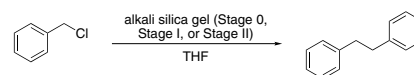
660167-5G	5 g
660167-25G	25 g

Sodium silica gel Stage II

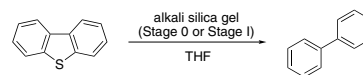
660175-5G	5 g
660175-25G	25 g



Scheme 1



Scheme 2



Scheme 3

NEW! Lithium Aminoborohydride (LAB) Reagents

Lithium aminoborohydride (LAB) reagents are a new class of powerful and selective reagents developed in the laboratory of Professor Bakthan Singaram at the University of California, Santa Cruz.

These reagents have reactivity comparable to lithium aluminum hydride (LAH). However, LABs have several advantages over LAH in that they are air-stable, nonpyrophoric, thermally stable, and hydrolyze only slowly in protic solvents above pH 4. Thus, LABs can perform in air virtually all of the transformations for which LAH is commonly used, and they offer significant advantages in safety, selectivity, ease of handling, and simple work-up procedures. LABs are capable of reducing a variety of functional groups, as summarized in **Scheme 4**.²

In the case of *N*-alkyl lactams with an ester group, LAB can be used at reduced temperatures to selectively reduce the ester, leaving the lactam intact. At elevated temperatures, the lactam is also reduced to form the cyclic amine (**Scheme 5**).³

In addition to hydride transfer, LABs can transfer the amine moiety, as in the case of reaction with halopyridines (**Scheme 6**)⁴ and primary alkyl methanesulfonates (**Scheme 7**).⁵ Alkyl methanesulfonates can be reduced to the corresponding alkanes with LAB reagents if Et₃B is added in substoichiometric amounts (**Scheme 8**).⁵

The LAB reagents' ability to function as both a reducing agent and amination reagent allows the researcher to perform tandem amination-reduction reactions, as in the case of reaction with 2-halobenzonitriles.⁶ The LAB reagent activates the halobenzonitrile toward nucleophilic attack by the amine moiety of the LAB reagent. This protocol is particularly effective with 2-fluorobenzonitrile (**Scheme 9**).

Lithium dimethylaminoborohydride solution, 1 M in tetrahydrofuran

NEW

C₂H₉BLiN

FW: 64.85

[53042-33-4]

658235-5ML 5 mL

658235-100ML 100 mL

Lithium pyrrolidinoborohydride solution, 1 M in tetrahydrofuran

NEW

C₄H₁₁BLiN

FW: 90.89

[144188-76-1]

658243-25ML 25 mL

658243-25ML 100 mL

Lithium morpholinoborohydride solution, 1 M in tetrahydrofuran

NEW

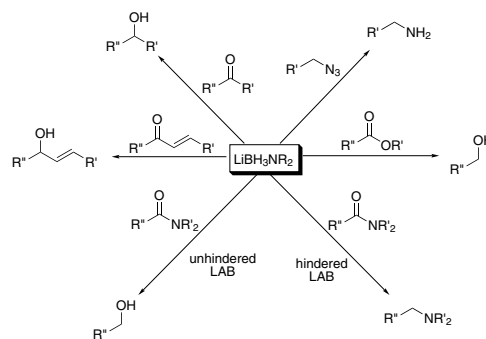
C₄H₁₁BLiNO

FW: 106.89

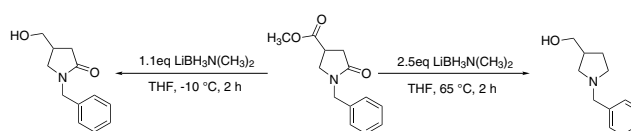
[144240-18-6]

658308-25ML 25 mL

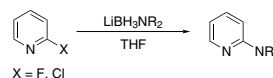
658308-100ML 100 mL



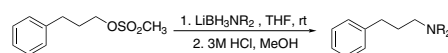
Scheme 4



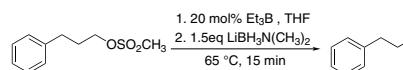
Scheme 5



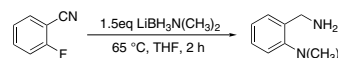
Scheme 6



Scheme 7



Scheme 8



Scheme 9



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NEW! NIMBA-Stabilized BH₃-THF

Borane-THF has long been a reagent of tremendous importance to synthetic organic chemists, utilized in reduction and hydroboration-oxidation as well as other transformations.^{7,8} As part of our ongoing commitment to safety, Sigma-Aldrich now introduces our new amine-stabilized BH₃-THF solution (650412), stabilized with 0.005 M *N*-isopropyl-*N*-methyl-*tert*-butylamine (NIMBA).⁹

While Sigma-Aldrich continues to provide 1.0 M BH₃-THF stabilized with 0.005 M NaBH₄ (176192), the new amine-stabilized solution has a practical advantage in that all pack sizes offered (100 mL, 800 mL, 8 L, 18 L, and bulk) meet Self-Accelerated Decomposition Temperature (SADT) thresholds required for safe shipment at room temperature, while demonstrating excellent reactivity and selectivity. In contrast, as a safety precaution for 1.0 M BH₃-THF stabilized with 0.005 M NaBH₄, Sigma-Aldrich currently ships pack sizes above 100 mL only under cooled conditions.

In a comparative study, the NIMBA-stabilized BH₃-THF solution was demonstrated to perform at the same high level as NaBH₄-stabilized reagent in reduction (**Scheme 10**) and hydroboration (**Scheme 11**) reactions.

In the asymmetric reduction of acetophenone with Me-CBS in combination with BH₃-THF, the NIMBA-stabilized solution exhibited improved enantioselectivities over the NaBH₄-stabilized reagent (**Scheme 12**).

For applications where the stabilizer is to be removed by a method other than aqueous/acidic work-up, users may find BH₃-THF stabilized with NIMBA preferable to use due to its low boiling point (127 °C, 760 mmHg)¹⁰ and, hence, its simplified removal by evaporation.

1.0 M BH₃-THF, whether stabilized with NIMBA or with NaBH₄, should be stored at 2–8 °C. Stability studies do not indicate significant degradation/impurities when stored at 2–8 °C for 6 months. However, when stored at room temperature, degradation varies with stabilizer and 1.0 M BH₃-THF exhibits superior stability when NIMBA is used as a stabilizer versus either unstabilized or stabilized with NaBH₄.⁹

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- Accessed directly via your desktop browser
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- Highly interactive



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Borane tetrahydrofuran complex solution, 1.0 M in THF, contains 0.005 M *N*-isopropyl-*N*-methyl-*tert*-butylamine as stabilizer

NEW

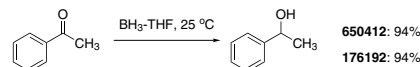
C₄H₁₁BO
FW: 85.94
[14044-65-6]

650412-100ML	100 mL
650412-800ML	800 mL
650412-1L	1 L
650412-8L	8 L
650412-18L	18 L

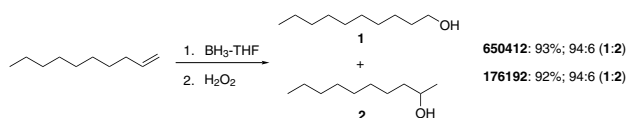
Borane tetrahydrofuran complex solution, 1.0 M in THF

C₄H₁₁BO
FW: 85.94
[14044-65-6]

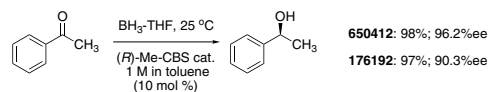
176192-100ML	100 mL
176192-800ML	800 mL
176192-8L	8 L
176192-18L	18 L
176192-90L	90 L
176192-200L	200 L



Scheme 10



Scheme 11



Scheme 12

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Sodium triacetoxyborohydride

Amine synthesis is one of the most common organic transformations when designing new drug candidates, and the reductive amination of carbonyl compounds is among the most useful and important tools to achieving structurally diverse primary, secondary, and tertiary amines. Sodium triacetoxyborohydride ($\text{NaBH}(\text{OAc})_3$) is particularly effective in reductive aminations due to its large scope, mildness, and selectivity.¹¹ It is preferred to sodium cyanoborohydride (NaBH_2CN) in many applications due to reduced toxicity of the side products formed, and better yields and reproducibility during synthesis. A typical reaction is taken from the synthesis of a key intermediate of a potent histamine H_3 receptor antagonist (**Scheme 13**).¹²

The reductive aminations of complex substrates also proceed smoothly using sodium triacetoxyborohydride, as in the example shown in **Scheme 14**. The product is an intermediate in a ring closing metathesis approach to a pentaheterocyclic ring system.¹³

A unique, one-pot synthesis of substituted *N*-acylpiperazinones from *N*-(2-oxoethyl)amides and α -amino esters by a novel tandem reductive amination-transamidation-cyclization process has been described (**Scheme 15**). This protocol was applied to the synthesis of a conformationally constrained farnesyltransferase inhibitor.¹⁴

A recent report detailed a one-pot, three-component reaction to produce 1,2-disubstituted-3-alkylidenpyrrolidines using sodium triacetoxyborohydride for *in situ* reduction of the intermediate pyrrolium salts (**Scheme 16**). In these reactions, only the (*E*)-isomer of the product is generated.¹⁵

Recently, sodium triacetoxyborohydride was used to stereoselectively reduce 4-ketoprolines to the corresponding *trans*-hydroxyproline in excellent yields (**Scheme 17**). By comparison, reduction of the 4-ketoprolinone esters failed to provide any product.¹⁶

Sodium triacetoxyborohydride, 95%

$\text{C}_6\text{H}_{10}\text{BNaO}_6$

FW: 211.94

[56553-60-7]

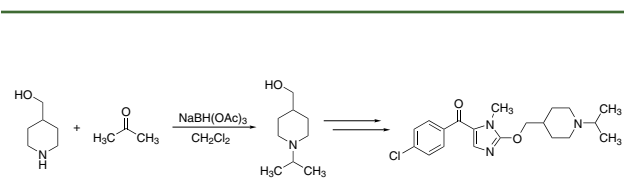
316393-25G	25 g
316393-100G	100 g
316393-1KG	1 kg
316393-10KG	10 kg
316393-25KG	25 kg

NEW! 2-Picoline-borane Complex

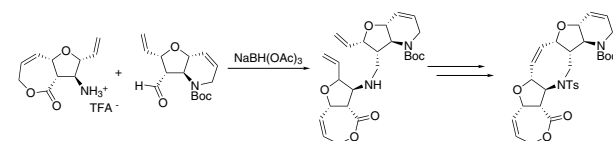
One-pot reductive amination of aldehydes and ketones is an important transformation in organic chemistry, and several common reducing agents are available for the direct conversion of carbonyl products into amines. However, many of these reagents have limitations (i.e., require significant excess of amine, necessitate the use of organic solvents, or cannot be used in large-scale applications) that restrict their use.

It has been recently reported¹⁷ that 2-picoline-borane (pic-BH_3) is an excellent alternative reagent for reductive aminations. pic-BH_3 is a stable solid that can be stored for long periods without detectable decomposition. Furthermore, this reagent is effective at direct reductive aminations in methanol, water, or even solvent-free conditions (**Scheme 18**).

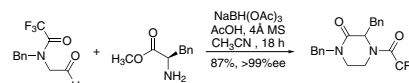
Reactions in water proceed in good yields for poorly water-soluble amines, but not for highly water-soluble amines. Reductive aminations also proceed in good yields for selected secondary amines.



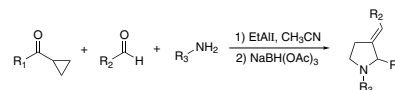
Scheme 13



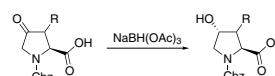
Scheme 14



Scheme 15



Scheme 16



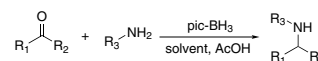
Scheme 17

2-Picoline borane complex, 97%

$\text{C}_6\text{H}_{10}\text{NB}$

FW: 106.96

654213-5G	5 g
-----------	-----



Scheme 18



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2-Methyl-CBS-oxazaborolidine

Since 1987, the series of chiral oxazaborolidines known as CBS catalysts (after the work of Corey, Bakshi, and Shibata) have been used for catalytic reduction of prochiral ketones,¹⁸ imines,¹⁹ and oximes²⁰ to produce chiral alcohols, amines, and amino alcohols in excellent yields and ee's. Sigma-Aldrich is pleased to offer both enantiomers of 2-methyl-CBS-oxazaborolidine (**Figure 1**) as a dry reagent, in addition to our current offerings as a 1 M solution in toluene.

Recently, (*R*)-2-methyl-CBS-oxazaborolidine was employed in asymmetric syntheses of Cinacalcet congeners (**Scheme 19**). After much experimental effort with different chiral reducing agents, the authors determined that Me-CBS-catalyzed reduction afforded the best results.²¹

Chung and co-workers have used (*S*)-2-methyl-CBS-oxazaborolidine in the asymmetric synthesis of *N-tert*-butyl disubstituted pyrrolidines (**Scheme 20**). Additionally, the authors determined that using controlled addition of the ketone at 40 °C allows the catalyst loading to be reduced to 0.5 mol %, while retaining >98% ee's.²²

Steven Ley's group has employed (*S*)-Me-CBS in their recent work on the total synthesis of 10-hydroxyasimicin (**Scheme 21**).²³ This product is a member of the natural product class referred to as the annonaceous acetogenins, a class of products which exhibit a wide array of biological activity.

Catalytic kinetic resolution can also be achieved using 2-methyl-CBS-oxazaborolidine. Partial reduction of the racemic bicyclic enone with (*S*)-Me-CBS and borane-dimethylsulfide complex affords the *cis*-alcohol (98% ee after crystallization from heptane) and unchanged (*S*)-enone in 97% ee (**Scheme 22**).²⁴

(*R*)-(+)-2-Methyl-CBS-oxazaborolidine

NEW

C₁₈H₂₀BNO

FW: 277.17

[112022-83-0]

649317-1G 1 g

649317-10G 10 g

(*R*)-2-Methyl-CBS-oxazaborolidine solution, 1 M in toluene

C₁₈H₂₀BNO

FW: 277.17

[112022-83-0]

457698-5ML 5 mL

457698-25mL 25 mL

(*S*)-(-)-2-Methyl-CBS-oxazaborolidine

NEW

C₁₈H₂₀BNO

FW: 277.17

[112022-81-8]

649309-1G 1 g

649309-10G 10 g

(*S*)-2-Methyl-CBS-oxazaborolidine solution, 1 M in toluene

C₁₈H₂₀BNO

FW: 277.17

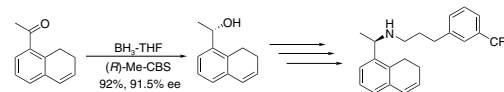
[112022-81-8]

457701-5ML 5 mL

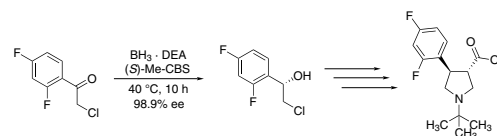
457701-25ML 25 mL



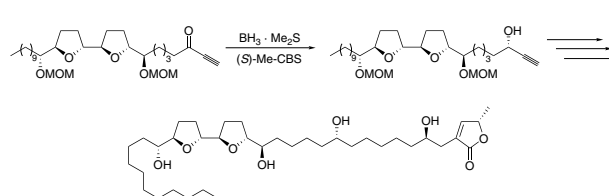
Figure 1



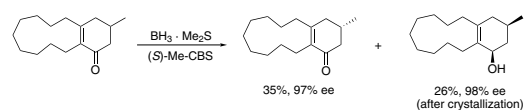
Scheme 19



Scheme 20



Scheme 21



Scheme 22

Monthly Chemistry E-Newsletter

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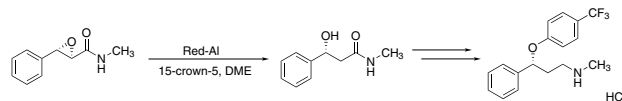
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Red-Al®

Red-Al®, or sodium bis(2-methoxyethoxy)aluminum dihydride (Vitride®, SMEAH), is a versatile reducing agent and a good substitute for LiAlH₄ in many reactions. Red-Al® is nonpyrophoric, although still moisture-sensitive, and is available in solution, allowing for easier handling compared to LiAlH₄.

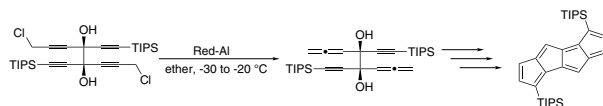
Red-Al® is particularly effective at the reduction of epoxides.

A recent example employs Red-Al® in a key step in the asymmetric synthesis of (*R*)-fluoxetine hydrochloride. The enantiomerically pure α,β -epoxyamide was reduced by Red-Al® in the presence of 15-crown-5 to produce the β -hydroxyamide in good yield and excellent selectivity (**Scheme 23**).²⁵



Scheme 23

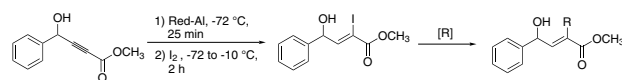
Cao and co-workers utilized Red-Al® to convert propargyl chlorides to allenes, which were subsequently used in a tandem Pauson-Khand reaction to create 3,7-diisopropylsilyldicyclopenta-[a,e]pentalene, a 14 π annulene (**Scheme 24**).²⁶



Scheme 24

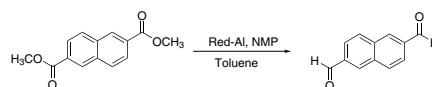
The preparation of highly functionalized α,β -disubstituted alkenoates can be achieved under mild conditions by reducing an acetylenic ester with Red-Al® and quenching the reaction with iodine to yield the vinyl iodide. The vinyl iodide can be subsequently transformed via Sonogashira or Stille coupling to form the desired α,β -disubstituted alkenoates (**Scheme 25**).

Red-Al® displays excellent (*E*)-selectivity in the reduction and does not reduce the methyl ester.²⁷



Scheme 25

Red-Al® reduction can selectively produce dialdehydes from aromatic diesters in the presence of *N*-methylpiperazine (**Scheme 26**). Although Red-Al® is regularly employed in the reduction of esters to aldehydes, reduction of the diester without the addition of the amine produced only the dicarbinol.²⁸



Scheme 26

Red-Al® sodium bis(2-methoxyethoxy)aluminum hydride solution, ≥ 65 wt. % in toluene

C₆H₁₆AlNaO₄

FW: 202.16

[22722-98-1]

196193-50G	50 g
196193-500G	500 g

Chloroborane-dioxane Complexes

Hydroboration of various olefins using monochloroborane or dichloroborane is a common route to valuable synthetic intermediates, including amines, ketones, dienes, and boronic acids or esters.⁷ The most common adducts used for this transformation, monochloroborane-dimethyl sulfide or catecholborane, both suffer from significant drawbacks. Monochloroborane-dimethyl sulfide exists in equilibrium with the BH₃ and BHCl₂ adducts and is unpleasant to handle in large-scale applications due to the presence of dimethyl sulfide. Catecholborane reacts sluggishly with alkenes and alkynes at room temperature and requires elevated temperatures to achieve the desired product. Furthermore, isolation of the product is sometimes complicated by the presence of the catechol byproduct.

Developed in the laboratory of H.C. Brown, the mono- and dichloroborane-dioxane complexes (**Figure 2**) eliminate many of these issues while retaining excellent selectivity and displaying good long-term stability and low volatility. These reagents can readily substitute for common hydroborating reagents such as BH₃·THF and BMS.²⁹ Sigma-Aldrich is pleased to offer these superior reagents for research applications.

Monochloroborane-dioxane complex solution, 3.0 M in dichloromethane

C₄H₁₀BClO₂

FW: 136.39

[235420-96-9]

555967-25ML	25 mL
555967-100ML	100 mL

Dichloroborane-dioxane complex solution, 3 M in dichloromethane

C₄H₉BCl₂O₂

FW: 170.83

[252265-33-1]

555959-25ML	25 mL
555959-100ML	100 mL



Figure 2



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Other Reagents for Reduction

(+)-DIP-Chloride™

C ₂₀ H ₃₄ BCl	
FW: 320.75	
[112246-73-8]	
317012-5G	5 g
317012-25G	25 g
317012-100G	100 g
317012-1KG	1 kg

(-)-DIP-Chloride™

C ₂₀ H ₃₄ BCl	
FW: 320.75	
[85116-37-6]	
317020-5G	5 g
317020-25G	25 g
317020-100G	100 g

(-)-DIP-Chloride™ solution, 65–75 wt. % in α-pinene NEW

C ₂₀ H ₃₄ BCl	
FW: 320.75	
[85116-37-6]	
655295-25ML	25 mL
655295-100ML	100 mL

(-)-DIP-Chloride™ solution, 50–65 wt. % in heptane NEW

C ₂₀ H ₃₄ BCl	
FW: 320.75	
[85116-37-6]	
648418-25ML	25 mL
648418-100ML	100 mL

(-)-DIP-Chloride™ solution, 50–65 wt. % in hexanes NEW

C ₂₀ H ₃₄ BCl	
FW: 320.75	
[85116-37-6]	
648426-25ML	25 mL
648426-100ML	100 mL

(+)-DIP-Bromide™, 95%

C ₂₀ H ₃₄ BBr	
FW: 365.20	
[112246-74-9]	
414271-5G	5 g
414271-25G	25 g

(-)-DIP-Bromide™, 95%

C ₂₀ H ₃₄ BBr	
FW: 365.20	
[104114-70-7]	
410993-5G	5 g
410993-25G	25 g

K-Selectride® solution, 1.0 M potassium tri-sec-butylborohydride in tetrahydrofuran

C ₁₂ H ₂₈ BK	
FW: 222.26	
[54575-49-4]	
220760-100ML	100 mL
220760-800ML	80 mL

KS-Selectride® solution, 1.0 M in tetrahydrofuran

C ₁₅ H ₃₄ BK	
FW: 264.34	
[67966-25-0]	
220779-100ML	100 mL

L-Selectride® solution, 1.0 M in tetrahydrofuran

C ₁₂ H ₂₈ BLi	
FW: 190.10	
[38721-52-7]	
178497-100ML	100 mL
178497-800ML	800 mL
178497-8L	8 L
178497-18L	18 L
178497-90L	90 L
178497-200L	200 L

L-Selectride® solution, 1.0 M lithium tri-sec-butylborohydride in tetrahydrofuran

C ₁₂ H ₂₈ BLi	
FW: 190.10	
[38721-52-7]	
257044-200ML	200 mL
257044-1.8L	1.8 L

LS-Selectride® solution, 1.0 M in tetrahydrofuran

C ₁₅ H ₃₄ BLi	
FW: 232.18	
[60217-34-7]	
225924-100ML	100 mL

N-Selectride®, 1.0 M in tetrahydrofuran

C ₁₂ H ₂₈ BNa	
FW: 206.15	
[67276-04-4]	
213403-100ML	100 mL
213403-800ML	800 mL

9-Borabicyclo[3.3.1]nonane solution, 0.5 M in tetrahydrofuran

C ₈ H ₁₅ B	
FW: 122.02	
[280-64-8]	
151076-100ML	100 mL
151076-800ML	800 mL
151076-8L	8 L
151076-18L	18 L

Borane-dimethylamine complex, 97%

C ₂ H ₁₀ BN	
FW: 58.92	
[74-94-2]	
180238-5G	5 g
180238-25G	25 g
180238-100G	100 g

Borane-pyridine complex, ~8 M BH₃C₅H₈BN

FW: 92.93

[110-51-0]

179752-5G	5 g
179752-25G	25 g
179752-100G	100 g

Catecholborane, 98%C₆H₅BO₂

FW: 119.91

[274-07-7]

188913-25G	25 g
188913-100G	100 g
188913-500G	500 g

Diisobutylaluminum hydride solution, 1.0 M in dichloromethaneC₈H₁₉Al

FW: 142.22

[1191-15-7]

214973-100ML	100 mL
214973-800ML	800 mL
214973-1L	1 L

Diisobutylaluminum hydride solution, 1.0 M in hexanesC₈H₁₉Al

FW: 142.22

[1191-15-7]

190306-100ML	100 mL
190306-800ML	800 mL
190306-8L	8 L
190306-18L	18 L

Diisobutylaluminum hydride solution, 1.0 M in tetrahydrofuranC₈H₁₉Al

FW: 142.22

[1191-15-7]

214981-100ML	100 mL
214981-800ML	800 mL
214981-8L	8 L
214981-18L	18 L

Diisobutylaluminum hydride solution, 1.0 M in tolueneC₈H₁₉Al

FW: 142.22

[1191-15-7]

215007-100ML	100 mL
215007-800ML	800 mL
215007-8L	8 L
215007-18L	18 L

Diisobutylaluminum hydride solution, 25 wt. % in tolueneC₈H₁₉Al

FW: 142.22

[1191-15-7]

192724-100G	100 g
192724-700G	700 g
192724-7KG	7 kg
192724-15KG	15 kg

Lithium aluminum hydride solution, 1.0 M in diethyl etherLiAlH₄

FW: 37.95

[16853-85-3]

212792-100ML	100 mL
212792-800ML	800 mL
212792-8L	8 L

Lithium aluminum hydride solution, 1.0 M in tetrahydrofuranLiAlH₄

FW: 37.95

[16853-85-3]

212776-100ML	100 mL
212776-800ML	800 mL
212776-8L	8 L
212776-18L	18 L

Lithium borohydride solution, 2.0 M in tetrahydrofuranLiBH₄

FW: 21.78

[16949-15-8]

230200-100ML	100 mL
230200-800ML	800 mL

Lithium tri-tert-butoxyaluminum hydride solution, 1.0 M in tetrahydrofuranC₁₂H₂₈AlLiO₃

FW: 254.27

[17476-04-9]

241814-100ML	100 mL
241814-800ML	800 mL

(+)-B-MethoxydiisopinocampheylboraneC₂₁H₃₇BO

FW: 316.33

[99438-28-5]

317039-5G	5 g
317039-25G	25 g
317039-100G	100 g

(-)-B-MethoxydiisopinocampheylboraneC₂₁H₃₇BO

FW: 316.33

[85134-98-1]

317047-5G	5 g
317047-25G	25 g
317047-100G	100 g

Super-Hydride® solution, 1.0 M lithium triethylborohydride in tetrahydrofuranC₆H₁₆BLi

FW: 105.94

[22560-16-3]

179728-100ML	100 mL
179728-800ML	800 mL
179728-8L	8 L
179728-18L	18 L
179728-90L	90 L
179728-200L	200 L



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Tebbe reagent solution, 0.5 M in toluene

$C_{13}H_{18}AlClTi$
FW: 284.58
[67719-69-1]

380237-25ML	25 mL
380237-100ML	100 mL

Tetramethylammonium triacetoxyborohydride, 95%

$C_{10}H_{22}BNO_6$
FW: 263.10
[109704-53-2]

317365-1G	1 g
317365-10G	10 g
317365-50G	50 g

Triethylborane solution, 1.0 M in hexanes

$C_6H_{15}B$
FW: 97.99
[97-94-9]

195030-100ML	100 mL
195030-800ML	800 mL

Triethylborane solution, 1.0 M in tetrahydrofuran

$C_6H_{15}B$
FW: 97.99
[97-94-9]

179701-100ML	100 mL
179701-800ML	800 mL

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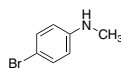
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4-Bromo-*N*-methylaniline, 97%

C₇H₈BrN

FW: 186.05

[6911-87-1]



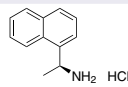
630977-1G	1 g
630977-5G	5 g

(*S*)-(-)-1-(1-Naphthyl)ethylamine hydrochloride

C₁₂H₁₄ClN

FW: 207.7

[51600-24-9]



656747-1G	1 g
656747-5G	5 g

2,4-Dichloro-5-fluoropyrimidine, 97%

C₄HCl₂FN₂

FW: 166.97

[2927-71-1]



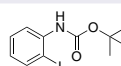
653233-250MG	250 mg
653233-1G	1 g

N-Boc-2-iodoaniline, 97%

C₁₁H₁₄INO₂

FW: 319.14

[161117-84-6]



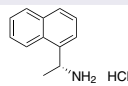
647314-1G	1 g
647314-10G	10 g

(*R*)-(+)-1-(1-Naphthyl)ethylamine hydrochloride

C₁₂H₁₄ClN

FW: 207.7

[82572-04-1]



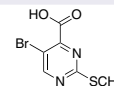
656755-1G	1 g
656755-5G	5 g

5-Bromo-2-(methylthio)pyrimidine-4-carboxylic acid

C₆H₅BrN₂O₂S

FW: 249.09

[50593-92-5]



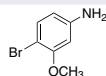
656739-1G	1 g
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4-Bromo-3-methoxyaniline, 97%

C₇H₈BrNO

FW: 202.05

[19056-40-7]



652660-1G	1 g
652660-5G	5 g

(*S*)- α -Methyl-2-pyridinemethanol

C₇H₉NO

FW: 123.15

[59042-90-9]



06368-250MG	250 mg
063680-1G	1 g

3,4,5-Trifluoronitrobenzene

C₆H₂F₃NO₂

FW: 177.08

[66684-58-0]

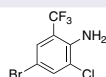


656917-5G	5 g
656917-25G	25 g

4-Bromo-2-chloro-6-(trifluoromethyl)aniline, 95%

C₆H₄BrClF₃N

FW: 262.45



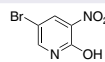
653713-1G	1 g
653713-5G	5 g

5-Bromo-2-hydroxy-3-nitropyridine

C₅H₃BrN₂O₃

FW: 218.99

[15862-34-7]



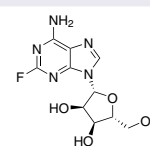
658448-5G	5 g
658448-25G	25 g

2-Fluoroadenosine

C₁₀H₁₂FN₅O₄

FW: 285.23

[146-78-1]



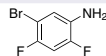
656402-250MG	250 mg
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5-Bromo-2,4-difluoroaniline

C₆H₄BrF₂N

FW: 208

[452-92-6]



656372-5G	5 g
656372-25G	25 g

2,4-Dimethoxypyrimidine, 97%

C₆H₈N₂O₂

FW: 140.14

[3551-55-1]



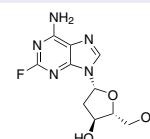
635162-1G	1 g
635162-5G	5 g

2-Fluoro-2'-deoxyadenosine

C₁₂H₁₀FN₅O₃

FW: 269.23

[21679-12-9]



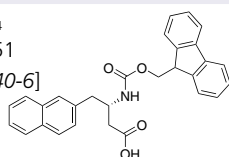
656399-250MG	250 mg
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(*S*)-3-(Fmoc-amino)-4-(2-naphthyl)butyric acid

C₂₉H₂₅NO₄

FW: 451.51

[270063-40-6]



72829-500MG	500 mg
-------------	--------

2,4,5-Trichloropyrimidine

C₄HCl₃N₂

FW: 183.42

[5750-76-5]



652032-1G	1 g
652032-5G	5 g

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