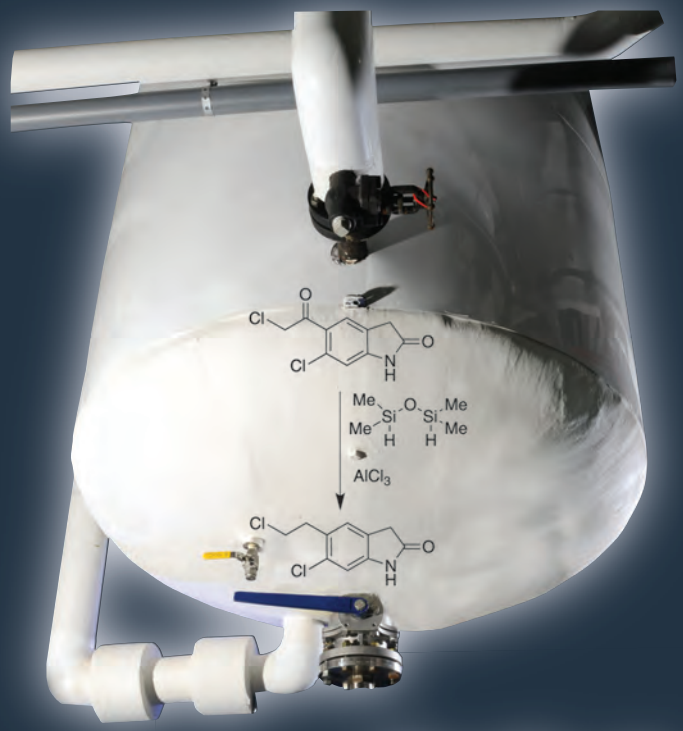


Gelest

Bulk Metal-Organics and Silanes

Pharmaceutical & Organic Synthesis

Cross-Coupling Reagents

Silane Reducing Agents

Silane Blocking Agents

Aluminum Alkyls

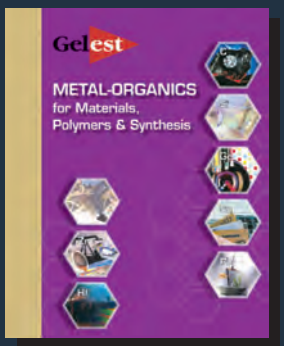
Reducing Agents

Metal Esters

Gelest

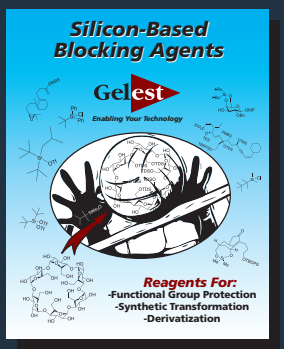
Silicon Compounds: Silanes and Silicones

Detailed chemical properties and reference articles for over 2,000 compounds. The 600 page catalog of silane and silicone chemistry includes scholarly reviews as well as detailed application information.



Metal-Organics

The latest Gelest catalog provides many new compounds with applications on optical, micro electronic, diagnostic and materials applications. Highly referenced listings and device applications are presented.

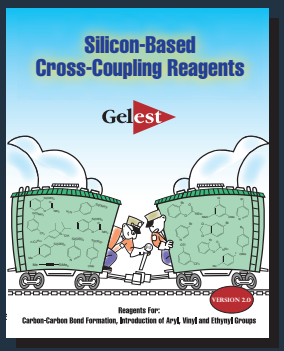


Silicon-Based Blocking Agents

These silicon reagents are used for functional group protection, synthesis and derivatization. The 52 page brochure presents detailed application information on silylation reagents for pharmaceutical synthesis and analysis. Detailed descriptions are presented on selectivity for reactions, resistance to chemical transformations and selective deblocking conditions.

Silicon-Based Reducing Agents

These silicon-based reagents are employed in there duction of various organic and inorganic systems. The 32 page brochure presents information complete with literature references for a variety of reductions using organosilanes.



Silicon-Based Cross-Coupling Reagents

These silicon-based reagents, representing a variety of aryl-, alkenyl- and alkynylsilanes, offer a viable alternative to the common cross-coupling methodologies. The 52 page brochure with 168 references provides information on a variety of protocols utilizing organosilanes in cross-coupling applications.

Bulk Metal-Organics and Silanes

For Pharmaceutical and Organic Synthesis

This product bulletin provides physical properties and information on synthetic applications of silanes that facilitates selection of readily available commercial materials. In addition to the commercial products listed in this brochure. Gelest manufactures a wide range of metal-organics and silanes on a developmental basis. Gelest welcomes the opportunity to provide further technical assistance for determining the optimal material for your application.

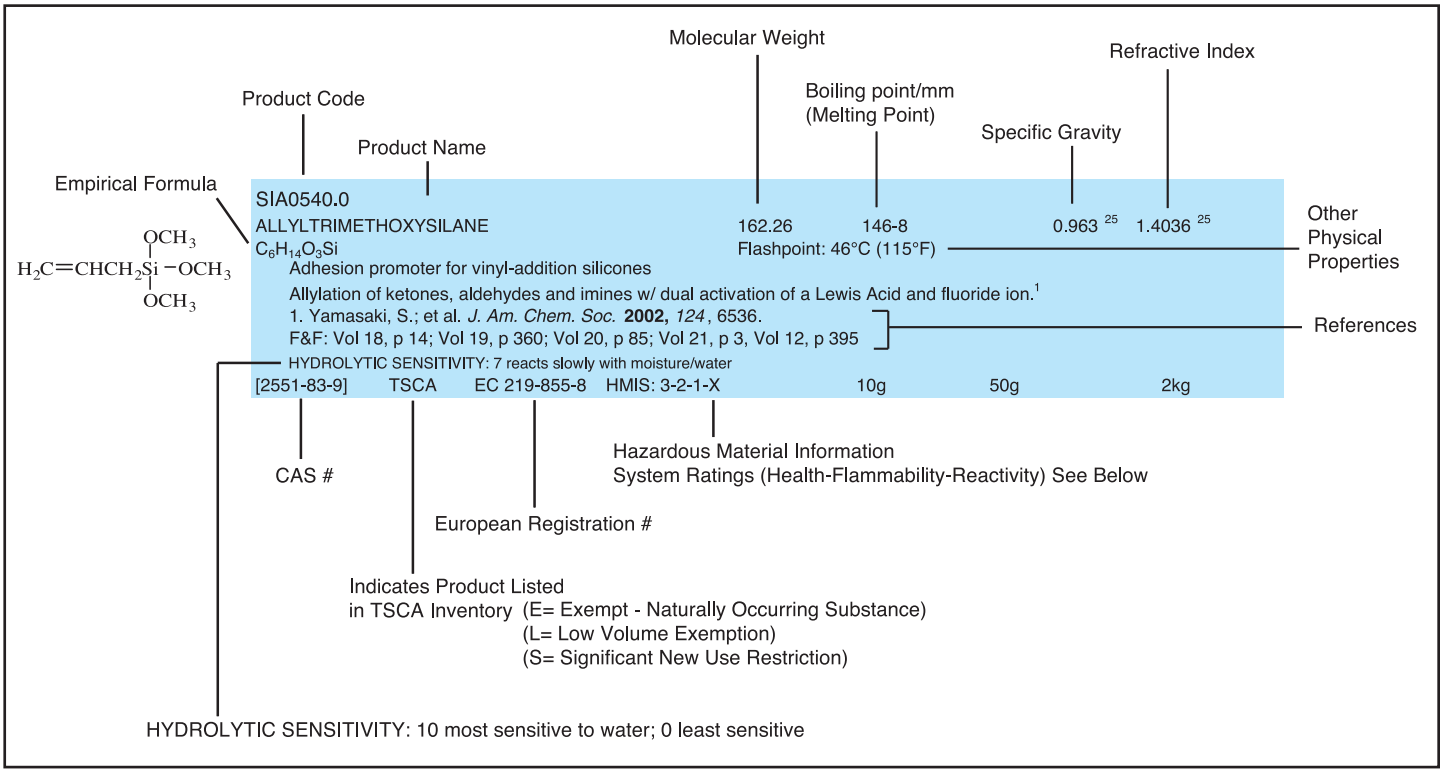
Enabling Your Technology

Gelest Inc.
11 East Steel Rd.
Morrisville, PA 19067 USA
Phone (United States): (215) 547-1015
Phone (United Kingdom): 44(0)1622 741115
www.gelest.com

Gelest Inc., headquartered in Morrisville, PA, is recognized worldwide as an innovator, manufacturer and supplier of commercial and research quantities of organosilicon and metal-organic compounds. Gelest serves advanced technology markets through a materials science driven approach. Gelest silanes find applications in:

Catalysis	**Optical Coatings**
Ceramics	**Polymer Synthesis**
Microelectronics	**Surface Modification**
Coupling Agents	**Pharmaceutical Synthesis**

Research & Development



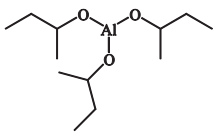
 2.5 liter (kg)

 5 gallon/ 19L cyl. (kg)

 55 gallon (kg)

ALUMINUM

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}



AKA020

ALUMINUM s-BUTOXIDE

ALUMINUM TRI-sec-BUTOXIDE

$C_{12}H_{27}AlO_3$ 246.32 200-6° / 30 0.9671 1.438

ΔHvap: 21.5 kcal/mole Flashpoint: 27°C (81°F)

Molecular complexity: 2.4

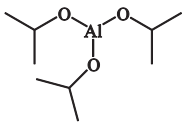
Used to make specialty, solid and recyclable catalyst systems for oxidations,[1] azide cycloadditions,[2] and oxidation and amination of hydroquinones.[3]

1. Kim, W.-H.; Park, I. S.; Park, J. *Org. Lett.* **2006**, *8*, 2543.
2. Park, I. S. et al. *Org. Lett.* **2008**, *10*, 497.
3. Kim, S.; Kim, D.; Park, J. *Adv. Synth. Catal.* **2009**, *351*, 2573.

See also AKA020.1

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[2269-22-9] TSCA HMIS: 2-3-1-X 2kg-kg 16kg-kg 185kg-kg inquire



AKA070

ALUMINUM ISOPROPOXIDE

$C_9H_{21}AlO_3$ 204.25 135-8° / 10 (118.5°) 1.035

ΔHvap: 19.4 kcal/mole TOXICITY: oral rat, LD50: 11,300 mg/kg

Molecular complexity: 3.0 Soluble: hot isopropanol, toluene

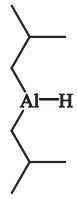
Reagent for the reduction of carbonyls to alcohols (Meerwein-Pondorf).[1,2,3]

1. Wilds, A. L. *Org. React.* **1944**, *2*, 178.
2. Kellogg, R. M. in Comprehensive Organic Synthesis, Vol 8 (Eds.: B. M. Trost, I Fleming), Pergamon Press, Oxford, 1991, p. 88.
3. F&F: Vol. 1, p 35; Vol. 3, p 10; Vol. 4, p 15; Vol. 5, p 14; Vol. 6, p 19; Vol. 8, p 15; Vol. 9, p 14; Vol. 11, p 29.

See also AKA020

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[555-31-7] TSCA HMIS: 2-2-1-X 1kg 10kg-kg 140kg-kg inquire



OMAL021.2

DIISOBUTYLALUMINUM HYDRIDE, 1M in heptane (19-20 wgt%)

DIBAL-H

$C_8H_{19}Al$ 142.22 116-8° / 1 0.731

Flashpoint: -4°C (25°F)

Reducing agent

Employed in a selective epoxide reduction in a synthesis of the muscarinic antagonist, tropane.[1]

1. Bream, R. N. et al. *Org. Proc. Res. Dev.* **2013**, *17*, 641.

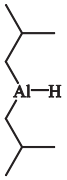
F&F: Vol. 1, p 260; Vol. 2, p 140; Vol. 3, p 101; Vol. 4, p 158; Vol. 5, p 224; Vol. 6, p 198; Vol. 7, p 111; Vol. 8, p 163; Vol. 9, p 161; Vol. 10, p 149; Vol. 11, p 185; Vol. 12, p 191; Vol. 15, p 137.

See also OMAL021.5, OMAL021.7

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1191-15-7] TSCA HMIS: 3-4-1-X 1.5kg-kg 14kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*



OMAL021.5

DIISOBUTYLALUMINUM HYDRIDE, 0.85M in tetrahydrofuran (14-16 wgt%)

DIBAL-H

$C_8H_{19}Al$ 142.22 116-8° / 1 0.84

Flashpoint: -14°C (7°F)

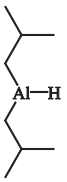
Reducing agent

See also OMAL021.7

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1191-15-7] TSCA HMIS: 3-4-2-X 1.5kg 16kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*



OMAL021.7

DIISOBUTYLALUMINUM HYDRIDE, 1M in toluene (16-17 wgt%)

DIBAL-H

$C_8H_{19}Al$ 142.22 116-8° / 1 0.858

Flashpoint: 4°C (39°F)

Reducing agent

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1191-15-7] TSCA HMIS: 3-4-1-X 1.5kg 16kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*

OMAL024.2

DIMETHYLALUMINUM CHLORIDE, 1M in heptane (12-14 wgt %)

C_2H_6AlCl 92.51 0.71

Flashpoint: -4°C (25°F)

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

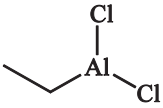
[1184-58-3] TSCA HMIS: 3-4-2-X 1.5kg 13kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*

Name	MW	bp °C/mm (mp °C)	n_D^{20}	$_4^{20}D$

OMAL033.2

ETHYLALUMINUM DICHLORIDE, 1M in heptane (16-18 wgt%)



$C_2H_5AlCl_2$ 126.95 203° (31°) 0.73

Flashpoint: -4°C (25°F)

ΔHcomb: 382.6 kcal/mole

Critical pressure: 18.4 atm

Critical temperature: 372.9˚C

F&F: Vol. 7, p 146; Vol. 10, p 177; Vol. 16, p 2.

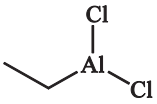
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[563-43-9] TSCA HMIS: 3-4-1-X 1.5kg 14kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*

OMAL033.7

ETHYLALUMINUM DICHLORIDE, 1.8M in toluene (24-26 wgt%)



$C_2H_5AlCl_2$ 126.95 203° 0.927

Flashpoint: 4°C (39°F)

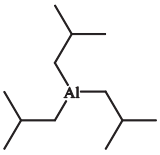
HYDROLYTIC SENSITIVITY: 9: reacts extremely rapidly with atmospheric moisture - may be pyrophoric - glove box or sealed system required

[563-43-9] TSCA HMIS: 3-4-2-X 1.5kg 75kg-kg

** includes zCYL-L-2400 cylinder* *** requires cylinder*

OMAL082.2

TRIISOBUTYLALUMINUM, 0.7M in heptane (19-21 wgt%)



$C_{12}H_{27}Al$ 198.33 0.67

Flashpoint: -4°C (25°F)

Shown to enantioselectively Michael add to nitrodienes and nitroenynes.[1]

1. Tissot, M. et al. *Org. Lett.* **2010**, *12*, 2770.

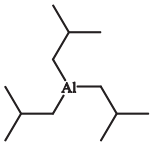
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[100-99-2] TSCA HMIS: 3-4-1-X 1.5kg 12kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*

OMAL082.7

TRIISOBUTYLALUMINUM, 1M in toluene (22-24 wgt%)



$C_{12}H_{27}Al$ 198.33 86° / 10 0.865

Flashpoint: -18°C (-1°F)

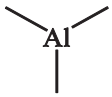
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[100-99-2] TSCA HMIS: 3-4-1-X 1.5kg 15kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*

OMAL086.2

TRIMETHYLALUMINUM, 1M in heptane (10-11 wgt%)



C_3H_9Al 72.09 125-6° (15°) 0.688

Flashpoint: -4°C (25°F)

Used in the enantioselective addition to aldehydes and ketones.[1]

Employed in the selective protection of aldehydes in the presence of ketones and of ketones in the presence of esters.[2]

1. *Carbohydrates: Tools for Stereoselective Synthesis*, **2013**, 293.
2. Barrios, F. J.; Springer, B. C.; Colby, D. A. *Org. Lett.* **2013**, *15*, 3082.

F&F: Vol. 8, p 508; Vol. 15, p 341; Vol. 17, p 372.

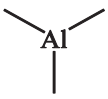
HYDROLYTIC SENSITIVITY: 9: reacts extremely rapidly with atmospheric moisture - may be pyrophoric - glove box or sealed system required

[75-24-1] TSCA HMIS: 3-4-2-X 1.5kg 13kg-kg

** includes zCYL-L-2400 cylinder* *** requires zCYL-B-022 or zCYL-S-019*

OMAL086.4

TRIMETHYLALUMINUM, 2M in toluene (17-18 wgt%)



C_3H_9Al 72.09 125-6° (15°) 0.81

Flashpoint: 4°C (39°F)

Used in the enantioselective addition to aldehydes and ketones.[1]

Employed in the selective protection of aldehydes in the presence of ketones and of ketones in the presence of esters.[2]

Shown to enantioselectively Michael add to nitrodienes and nitroenynes.[3]

1. *Carbohydrates: Tools for Stereoselective Synthesis*, **2013**, 293.
2. Barrios, F. J.; Springer, B. C.; Colby, D. A. *Org. Lett.* **2013**, *15*, 3082.
3. Tissot, M. et al. *Org. Lett.* **2010**, *12*, 2770.

See also OMAL086.2

HYDROLYTIC SENSITIVITY: 9: reacts extremely rapidly with atmospheric moisture - may be pyrophoric - glove box or sealed system required

[75-24-1] TSCA HMIS: 3-4-2-X 1.5kg 15kg

** includes zCYL-L-2400 cylinder* *** includes zCYL-B-022*


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)

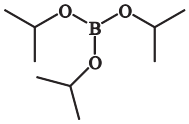

55 gallon (kg)

BORON

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

AKB156.5

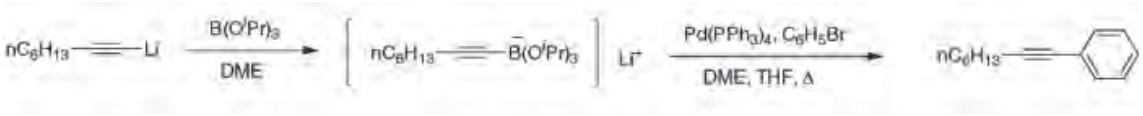
BORON ISOPROPOXIDE



$C_9H_{21}BO_3$ 188.08 139-41° 0.815 1.3760

Viscosity: 1.03 cSt
Vapor pressure, 75°: 76 mm
Flashpoint: 28°C (82°F)
TOXICITY: oral mouse, LD50: 2,500 mg/kg

Undergoes selective allylation with Grignards to form boronic esters.[1]



1. Cole, T. et al. *Organometallics* **1992**, *11*, 652.

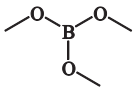
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[5419-55-6] TSCA HMIS: 2-4-1-X 2kg-kg 13kg-kg 140kg-kg inquire

AKB157

BORON METHOXIDE

TRIMETHYL BORATE



$C_3H_9BO_3$ 103.91 68-9° (-29°) 0.915 1.3568

Vapor pressure, 25°: 141.3 mm
Viscosity: 0.4 cSt
Flashpoint: -1°C (30°F)
TOXICITY: oral rat, LD50: 7,910 mg/kg

Precursor to boronic acids used in Suzuki-Miyaura cross-coupling.[1,2,3]

Reagent for derivatizing carbohydrates for GC analysis.[4]

1. *Boronic Acids*, Hall, D. G. Ed. Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany ISBN 3-527-3099
2. Leermann, T.; Leroux, F. R.; Colobert, F. *Org. Lett.* **2011**, *13*, 4479.
3. Wang, X.-J. et al. *Org. Lett.* **2006**, *8*, 305.
4. Reinhold, V. et al. *Carbohyd. Res*. **1974**, *37*, 203.

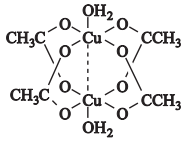
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[121-43-7] TSCA HMIS: 2-4-1-X 2kg-kg 15kg-kg 175kg-kg inquire

COPPER

CXCU010

COPPER(II) ACETATE, monohydrate



$C_4H_6CuO_4{\cdot}H_2O$ 181.63/*199.65* (115°) 1.822

Soluble: water, methanol
TOXICITY: oral rat, LD50: 710 mg/kg

Employed in a radical-mediated cyclization for the formation of the core structure of Septoriamycin.[1]

Used as the oxidant in the dehydrogenative alkenylation of 1-phenylpyrazole.[2]

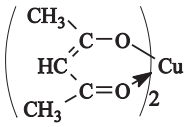
1. Fotiadou, A. D.; Zografos, A. L. *Org. Lett.* **2011**, *13*, 4592.
2. Arockiam, P. B. et al. *Green Chem.* **2011**, *13*, 3075.

HYDROLYTIC SENSITIVITY: 0: forms stable aqueous solutions

[6046-93-1] TSCA HMIS: 2-1-0-X 2kg-kg 20kg-kg 200kg-kg inquire

AKC260

COPPER(II) 2,4-PENTANEDIONATE



$C_{10}H_{14}CuO_4$ Metal content: 23.8-24.5% Cu 261.76 78° / .05 sub. (238-40° dec.) 1.8

Color: pale blue
Solubility, dimethylsulfoxide: 4.4 g/l
Solubility, toluene: 0.4 g/l
Solubility, water: 0.2 g/l
TOXICITY: ivn mus, LD50: 10 mg/kg
Vapor pressure, 100°: 0.001 mm
Vapor pressure, 163°: 0.1 mm
Stability constant, pKa dioxane/water: 9.7

Catalyst for the reduction of nitro-aromatics with $NaBH_4$.[1]

Catalyst for hydrogenation of unsaturated fats.[2]

1. Hanaya, K. et al. *J. Chem. Soc., Perkin Trans*. **1979**, *1*, 2409.
2. Emken, E. et al. *J. Am. Oil Chem. Soc*. **1966**, *43*, 14.

HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions

[13395-16-9] TSCA HMIS: 3-1-1-X 10kg-kg 200kg-kg inquire

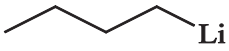
 2.5 liter (kg)

 5 gallon/ 19L cyl. (kg)

 55 gallon (kg)

LITHIUM

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}



OMLI012

n-BUTYLLITHIUM, 2.5M in hexane

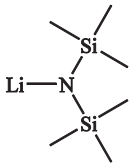
C_4H_9Li 22-24 wgt% 64.06 0.695

Flashpoint: -23°C (-9°F)

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[109-72-8] TSCA HMIS: 3-4-2-X 1.25kg 12kg

** includes zCYL-L-2400 cylinder* *** includes zCYL-B-022*



SIL6467.2

LITHIUM HEXAMETHYLDISILAZIDE, 0.85M in hexane

$C_6H_{18}LiNSi_2$ 19 - 21 wgt % 167.33 0.716

Flashpoint: -23°C (-9°F)

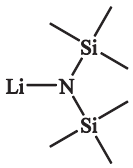
Review of synthetic utility.[1]

Used in the use of chloroform in the trichloromethylation of a ketone in a scaled-up synthesis of β-secretase inhibitor, spiropiperidine.[3]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 356-367.
2. Henegar, K. E. et al. *Org. Process. Res. Dev.* **2013**, *17*, 985.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[4039-32-1] TSCA HMIS: 3-4-1-X 2.5kg-kg 12.5kg-kg 135kg-kg inquire



SIL6467.4

LITHIUM HEXAMETHYLDISILAZIDE, 1.25M in tetrahydrofuran

$C_6H_{18}LiNSi_2$ 23 - 25 wgt % 167.33 0.891

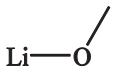
Flashpoint: -14°C (7°F)

Review of synthetic utility.[1]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 356-367.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[4039-32-1] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 165kg-kg inquire



AKL461

LITHIUM METHOXIDE, 2.25M in methanol

CH_3LiO 9-10 wgt % 37.97 0.85

Flashpoint: 11°C (52°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[865-34-9] TSCA HMIS: 3-4-1-X 2kg-kg 14kg-kg 160kg-kg inquire

OMLI041

METHYL LITHIUM, 3M in diethoxymethane

CH_3Li 7-9 wgt% 21.98 0.83

Decomposition rate, 20°: 0.02% active base/day

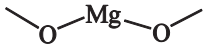
F&F: Vol. 1, p 686; Vol. 2, p 274; Vol. 3, p 202; Vol. 5, p 448; Vol. 6, p 384, Vol. 7, p 242, Vol. 8, p 342; Vol. 9, p 310; Vol. 12, p 324; Vol. 14, p 211; Vol. 15, p 208.

HYDROLYTIC SENSITIVITY: 9: reacts extremely rapidly with atmospheric moisture - may be pyrophoric - glove box or sealed system required

[917-54-4] HMIS: 3-4-2-X store <5°C 2kg 15kg

** includes zCYL-L-2400 cylinder* *** includes zCYL-B-022*

MAGNESIUM



AKM503

MAGNESIUM METHOXIDE, 7-8% in methanol

$C_2H_6MgO_2$ 86.38 0.816 1.3380

Flashpoint: 11°C (52°F)

Reviewed for preparation and synthetic applications.[1]

1. Shimizu, M. *Science of Synthesis,* **2004**, *7*, 645.

F&F: Vol. 2, p 255; Vol. 3, p 189; Vol. 7, p 220; Vol. 11, p 309.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[109-88-6] TSCA HMIS: 3-4-1-X 2kg-kg 15kg-kg 170kg-kg inquire

 2.5 liter (kg)

 5 gallon/ 19L cyl. (kg)

 55 gallon (kg)

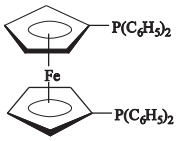
PHOSPHORUS

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

OMFE022

1,1'-BIS(DIPHENYLPHOSPHINO)FERROCENE

dppf



$C_{34}H_{28}FeP_2$ 554.56 (180-4°)

Yellow-orange crystals

Forms catalyst with $PdCl_2$ for very effective Suzuki cross-coupling protocol.[1]

Used to prepare a stable nickel catalyst for Suzuki-Miyaura cross-coupling reactions.[2]

Role in various catalyst applicaions.[3,4]

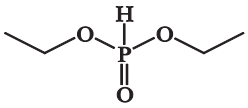
1. Colacot, T. J.; Shea, H. A. *Org. Lett.* **2004**, *6*, 3731.
2. Ge, S.; Hartwig, J. F. *Angew. Chem., Int. Ed. Engl.* **2012**, *51*, 12837.
3. Young, D. J.; Chien, S. W.; Hor, T. S. A. *Dalton Trans.* **2012**, *41*, 12655.
4. Colacot, T. J.; Parisel, S. in *Ferrocenes*, Stepnicka, P. Ed., Wiley and Sons, **2008**, 117-140.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[12150-46-8] HMIS: 2-2-1-X 2kg-kg 15kg-kg inquire

OMPH027

DIETHYLPHOSPHITE



$C_4H_{11}O_3P$ 138.11 50-1° / 2 1.072 1.4080

Viscosity: 1.2 cSt Flashpoint: 90°C (194°F)

Forms phosphonates by reaction with alkyl halogenides

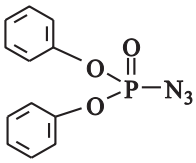
F&F: Vol. 1, p 251; Vol. 2, p 132; Vol. 12, p 187.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[762-04-9] TSCA HMIS: 2-2-1-X 2.5kg-kg 18kg-kg

OMPH056

DIPHENYLPHOSPHORYL AZIDE



$C_{12}H_{10}N_3O_3P$ 275.2 157° / 0.17 1.277 1.5520

Reviewed along with other azides.[1]

Employed in preparation of macrocyclic lactams.[2]

Reagent for aziridation of olefins in presence of catalysts.[3]

Used as a reagent for a modified Curtius reaction.[4]

1. Swamy, K. C. K. et al. *Chem. Rev.* **2009**, *109*, 2551.
2. Qian, L. et al. *Tetrahedron Lett.* **1990**, *31*, 6469.
3. Ikeda, L. I. et al. *Synthesis* **1980**, 650.
4. Shiiori, T.; Ninomiya, K.; Yamada, S. *J. Am. Chem. Soc.* **1972**, *94*, 6203.

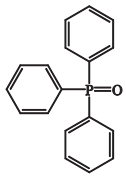
F&F: Vol. 4, p 210; Vol. 5, p 280; Vol. 7, p 138; Vol. 8, p 211; Vol. 10, p 173, Vol. 16, p 160.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[26386-88-9] HMIS: 3-2-1-X 2kg-kg 20kg-kg

OMPH081

TRIPHENYLPHOSPHINE OXIDE



$C_{18}H_{15}OP$ 278.28 360° (151-4°) 1.212

Flashpoint: 180°C (356°F)

Employed in the cross-coupling of potassium silanolates with aryl and vinyl halides.[1]

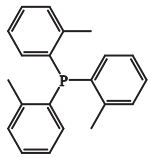
1. Denmark, S. E.; Smith, R. C.; Tymonko, S. A. *Tetrahedron* **2007**, *63*, 5730.

HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions

[791-28-6] TSCA HMIS: 2-2-0-X 2kg-kg 10kg-kg

OMPH081.4

TRI(o-TOLYL)PHOSPHINE



$C_{21}H_{21}P$ 304.37 (123-5°)

Soluble: acetone, toluene TOXICITY: oral mouse, LD50: >2,000 mg/kg

Ligand

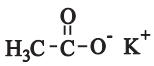
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[6163-58-2] TSCA HMIS: 3-3-1-X 2kg-kg

POTASSIUM

CXPO010

POTASSIUM ACETATE



$C_2H_3KO_2$ 98.15 (292°) 1.57

Deliquescent TOXICITY: oral rat, LD50: >3,250 mg/kg

Bulk density: 700-750 g/l Specific heat: 0.29 cal/g/°

Solubility, methanol, 25°: 200 g/l ΔHform: -172.8 kcal/mole

Solubility, water, 20°: 725 g/l

HYDROLYTIC SENSITIVITY: 0: forms stable aqueous solutions

[127-08-2] TSCA HMIS: 2-1-0-X 2kg-kg 12.5kg-kg 45kg-kg inquire

 2.5 liter (kg)

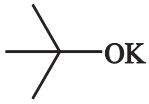
 5 gallon/ 19L cyl. (kg)

 55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}

AKP630

POTASSIUM t-BUTOXIDE



C_4H_9KO 112.21 275° dec. (220°)

Hygroscopic — Solubility, t-butanol: 140 g/l

Bulk density: 500 g/l — Solubility, hexane: 1.8 g/l

Vapor pressure, 220˚: 1 mm — Solubility, tetrahydrofuran: 220 g/l

Stronger base than sodium ethoxide

Catalyst, reactant for condensations, isomerizations, dehydrohalogenation- reviewed.[1]

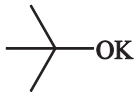
1. F&F: Vol. I, p 911-927; Vol. 2, p 336; Vol. 3, p 233.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[865-47-4] TSCA HMIS: 3-3-2-X 250g 10kg-kg 100kg-kg inquire

AKP632

POTASSIUM t-BUTOXIDE, 1.6M in tetrahydrofuran (19-20 wgt%)



C_4H_9KO 112.21 0.906

Flashpoint: -14°C (7°F)

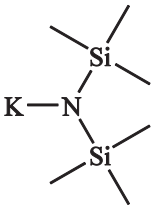
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[865-47-4] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 180kg-kg inquire

SIP6890.0

POTASSIUM HEXAMETHYLDISILAZIDE, 11% in toluene, 0.5M

POTASSIUM BIS(TRIMETHYLSILYL)AMIDE



$C_6H_{18}KNSi_2$ 199.49 (194-5°) 0.877

Flashpoint: 4°C (39°F)

Review of synthetic utility.[1]

Sterically hindered base.[2]

Anionic initiator for preparation of polyalkylene oxides.[3]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 432-453.
2. Es-Sayed, M. et al. *Synlett* **1992,** *12*, 962.
3. Yokoyama, M. *Bioconjugate Chem.* **1992,** *3*, 275.

F&F: Vol. 4, p 407; Vol. 10, p 38, p 326; Vol. 13, p 257; Vol. 16, p 282.

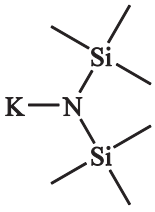
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[40 HMIS: 3-4-1-X 2kg-kg 15kg-kg 160kg-kg inquire

SIP6890.1

POTASSIUM HEXAMETHYLDISILAZIDE, 20% in THF

POTASSIUM BIS(TRIMETHYLSILYL)AMIDE



$C_6H_{18}KNSi_2$ 199.49 0.898

Flashpoint: -14°C (7°F)

Sterically hindered base.[1]

Employed in the fluoroform trifluoromethylation of silanes, boranes, sulfur and non-enolizable ketones.[2]

1. Es-Sayed, M. et al. *Synlett* **1992,** *12*, 962.
2. Prakash, G. K. S. et al. *Science,* **2012***, 338*, 1324.

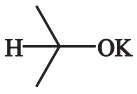
F&F: Vol. 4, p 407; Vol. 10, p 38, p 326; Vol. 13, p 257; Vol. 16, p 282.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[40949-94-8] HMIS: 3-4-1-X 2kg-kg 16kg-kg 160kg-kg inquire

AKP643

POTASSIUM ISOPROPOXIDE, 18 - 20% in isopropanol



C_3H_7KO 98.19 0.86

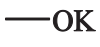
Flashpoint: 12°C (54°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[6831-82-9] HMIS: 3-4-1-X 2kg-kg 15kg-kg

AKP645

POTASSIUM METHOXIDE, 95%



CH_3KO 70.12

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[865-33-8] TSCA HMIS: 4-3-2-X 2kg-kg 10kg-kg 100kg-kg inquire

AKP646

POTASSIUM METHOXIDE, 3.4M in methanol (24-26%)

CH_3KO 70.12 0.95 1.37

Flashpoint: 11°C (52°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[865-33-8] TSCA HMIS: 3-4-1-X 2kg-kg 17kg-kg 180kg-kg inquire

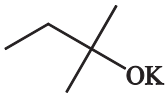

2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	n_D^{20}

AKP647



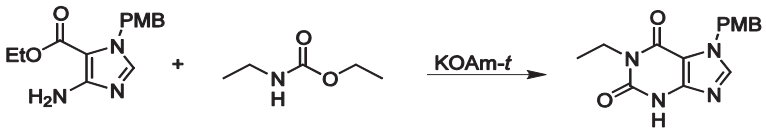
POTASSIUM 2-METHYL-2-BUTOXIDE

POTASSIUM t-AMYLATE

$C_5H_{11}KO$ 126.24 (>160° dec.)

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

More soluble strong base similar to potassium tert-butoxide. Used in synthesis of substituted xanthenes.[1]

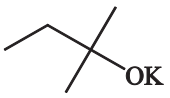


Employed in the preparation of a carbene ruthenium catalyst for olefin metathesis.[2]

1. Zavialov, I. A. et al. *Org. Lett.* **2004**, *6*, 2237.
2. Jaafpour, L. Hillier, A. C.; Nolan, S. P. *Organometallics* **2002**, *21*, 442.

[41233-93-6] TSCA HMIS: 3-4-1-X 2kg-kg 10kg-kg 100kg-kg inquire

AKP648



POTASSIUM 2-METHYL-2-BUTOXIDE, 14-16% in cyclohexane

POTASSIUM t-AMYLATE

$C_5H_{11}KO$ 126.24 0.80 ^{25}

Flashpoint: -18°C (0°F)

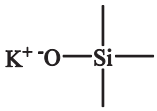
Coreactant with hydroxylamine hydrochloride for conversion of ketones to oximes.[1]

1. Pearson, D. et al. *J. Org. Chem.* **1963**, *28*, 1557.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[41233-93-6] TSCA HMIS: 2-4-1-X 2kg-kg 14kg-kg 150kg-kg inquire

SIP6901.2



POTASSIUM TRIMETHYLSILANOLATE, 2M in tetrahydrofuran

C_3H_9KOSi 26 - 29 wgt % 128.29 0.91

Flashpoint: -14°C (7°F)

Contains <5% methanol

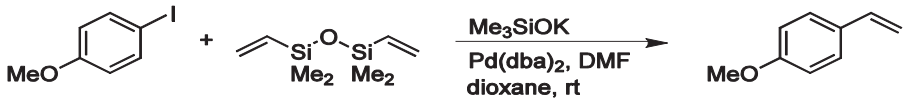
Reviewed.[1]

Used in the vinylation of aromatic bromides.[2]

Employed in a silicon-based cross-coupling step in a synthesis of papulacandin D.[3]

Converts methyl esters to potassium salts of carboxylic acids.[4]

Promoter for the silicon-based cross-coupling of vinylsiloxanes with aryl iodides.[2,5]



1. Bennett, C. E. in *e-EROS Encyclopedia of Reagents for Organic Synthesis*, **2007**.
2. Denmark, S. E.; Butler, C. R. *Org. Synth.* **2009**, *86*, 274.
3. Denmark, S. E.; Regens, C. S.; Kobayashi, T. *J. Am. Chem. Soc.* **2007**, *129*, 2774.
4. Minta, E. et al. *Tetrahedron Lett.* **2005**, *46*, 1795.
5. Denmark, S. E.; Butler, C. R. *J. Am. Chem. Soc.* **2008**, *130*, 3690.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[10519-96-7] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)

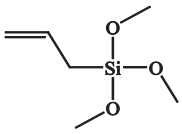

55 gallon (kg)

SILICON

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIA0540.0

ALLYLTRIMETHOXYSILANE



$C_6H_{14}O_3Si$ 162.26 146-8° 0.963 ^{25} 1.4036 ^{25}

Flashpoint: 46°C (115°F)

Allylation of ketones, aldehydes and imines with dual activation of a Lewis Acid and fluoride ion.[1]

Used in the regioselective generation of the thermodynamically more stable enol trimethoxysilyl ethers, which in turn are used in the asymmetric generation of quaternary carbon centers.[2]

Converts arylselenyl bromides to arylallylselenides.[3]

Allylates aryl iodides.[4]

1. Yamasaki, S. et al. *J. Am. Chem. Soc.* **2002,** *124*, 6536.
2. Ichibakase, T. et al. *Tetrahedron Lett.* **2008**, *49*, 4427.
3. Bhadra, S. et al. *J. Org. Chem.* **2010**, *75*, 4864.
4. Mowery, M. E.; DeShong, P. *J. Org. Chem.* **1999**, *64,* 1684.

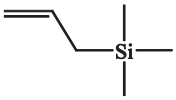
F&F: Vol 18, p 14; Vol 19, p 360; Vol 20, p 85; Vol 21, p 3, Vol 12, p 395

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[2551-83-9] TSCA HMIS: 3-2-1-X 2kg-kg 16kg-kg 150kg-kg inquire

SIA0555.0

ALLYLTRIMETHYLSILANE



$C_6H_{14}Si$ 114.26 85-6° 0.7193 1.4074

Flashpoint: 7°C (45°F)

Versatile synthon - transfers allyl group, highly nucleophilic double bond

Key reviews.[1,2,3,4]

Undergoes polymerization with zirconocene complexes.[5]

Provides functional termination of living carbocationic polymerized polyisobutylenes.[6]

Allylates dioxolanes.[7]

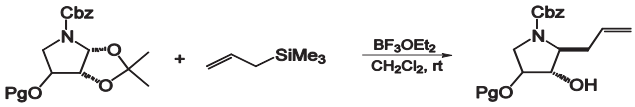
Allylates imines under fluoride catalysis.[8]

Provides alternative for the formation of trans-allyl-2,3-O-isopropylidene-protected pyrrolidines.[9]

Carries out deoxygenative allylation of benzylic alcohols.[10]

Allylates lithium alkoxides w/ loss of the lithium oxide.[11]

Forms benzylic homoallylic alcohols in a 3-component reaction w/ aldehydes.[12]



Diallylates ketones via their ketals.[13]

1. *Handbook for Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 14-24.
2. Weber, W. In *Silicon Reagents for Organic Synthesis;* Springer-Verlag: 1983, p173.
3. Fleming, I. *Synthesis* **1979,** 761.
4. Hosomani, N. *Acc. Chem. Res.* **1988,** *21*, 200.
5. Habane, S. et al. *Macromol. Chem. Phys.* **1998,** *199*, 2211.
6. Wilczek, L. et al. *J. Polym. Sci., Part A: Polym. Chem.* **1987,** *25*, 3255.
7. Dussault, P. H.;Liu, X. *Org. Lett.* **1999,** *1*, 1391.
8. Weng, D. K. et al. *J. Org. Chem.* **1999,** *64*, 4233.
9. De Armas, P. et al. *Org. Lett.* **2000,** *3*, 3513.
10. De, S. K.; Gibbs, R. A. *Tetrahedron Lett.* **2005**, *46*, 8345.
11. Kabalka, G. W. et al. *Organometallics* **2007**, *26*, 4112.
12. Kataki, D.; Phukan, P. *Tetrahedron Lett.* **2009**, *50*, 1958.
13. Galy, N. et al. *Tetrahedron* **2011**, *67*, 1448.

F&F: Vol. 7, p 370; Vol. 8, p 273; Vol. 9, p 155; Vol. 10, p 1, p 4, p 439; Vol. 11, p 16, p 532; Vol.12, p 223; Vol. 13, p 11, p 295, p 305, p 343; Vol. 14, p 18; Vol. 15, p 286, p 378, p 403, p 411; Vol. 21, p 11, p 12, p 89.

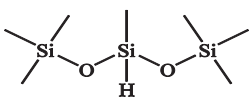
HYDROLYTIC SENSITIVITY: 2: reacts with aqueous acid

[762-72-1] TSCA HMIS: 2-4-0-X 1.5kg-kg 13kg-kg 140kg-kg inquire

SIB1844.0

BIS(TRIMETHYLSILOXY)METHYLSILANE

1,1,1,3,5,5,5-HEPTAMETHYLTRISILOXANE



$C_7H_{22}O_2Si_3$ 222.51 141-2° 0.8136 1.3815

Critical temperature: 280.2°

Critical pressure: 14.81 bar

Flashpoint: 27°C (81°F)

Trisiloxane reducing agent similar to SIT8721.0 - tris(trimethylsiloxy)silane.[1]

1. Drew, M. D. et al. *Synlett* **1997**, 989.

HYDROLYTIC SENSITIVITY: 3: reacts with aqueous base

[1873-88-7] TSCA HMIS: 2-3-1-X 2kg-kg 14kg-kg

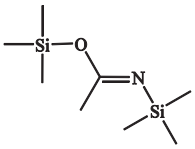

2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

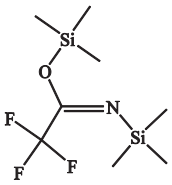
Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}

SIB1846.0



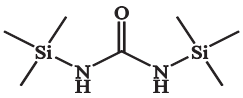
N,O-BIS(TRIMETHYLSILYL)ACETAMIDE
BSA
$C_8H_{21}NOSi_2$ 203.43 71-3° / 35 (-24°) 0.832 1.418
Flashpoint: 42°C (108°F)
Versatile blocking agent TOXICITY: oral rat, LD50: 1,580 mg/kg
Review of synthetic utility.[1]
1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 58-72.
F&F: Vol. 13, p 34; Vol. 16, p 285; Vol. 20, p 50; Vol. 21, p 62.
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[10416-59-8] TSCA HMIS: 3-2-1-X 2kg-kg 13kg-kg 150kg-kg inquire

SIB1876.0



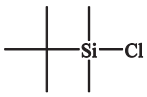
N,O-BIS(TRIMETHYLSILYL)TRIFLUOROACETAMIDE
BSTFA
$C_8H_{18}F_3NOSi_2$ 257.40 45-50° / 15 (-10°) 0.969 1.3840
Flashpoint: 24°C (75°F)
Review on organosilane protecting groups.[1]
Silylation reagent for preparing derivatives of amino acids.[2]
1. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
2. Stalling, D. et al. *Biochem. Biophys., Res. Comm.* **1968,** *31*, 616.
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents
[25561-30-2] TSCA HMIS: 3-3-1-X 2kg-kg 17kg-kg 180kg-kg inquire

SIB1878.0



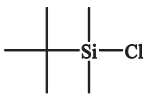
N,N'-BIS(TRIMETHYLSILYL)UREA
BSU
$C_7H_{20}N_2OSi_2$ 204.42 (222-4°)
Silylation reagent with solid byproduct
Review on organosilane protecting groups.[1]
1. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
F&F: Vol. 16, p 82.
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[18297-63-7] TSCA HMIS: 2-2-1-X 10kg-kg 100kg-kg

SIB1935.0



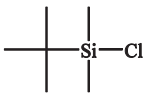
t-BUTYLDIMETHYLCHLOROSILANE
$C_6H_{15}ClSi$ 150.72 124-6° (87-90°) 0.830
Vapor pressure, 100°: 476 mm Flashpoint: 22°C (72°F)
Autoignition temperature: 405˚C
Blocking agent widely used in prostaglandin synthesis
Silylation reagent - derivatives resistant to Grignards, alkyl lithium compounds, etc.
F&F: Vol. 4, p 57, p 176; Vol. 5, p 74; Vol. 6, p 78; Vol. 8, p 58; Vol. 9, p 77; Vol. 10, p 62; Vol. 11, p 88; Vol. 12, p 83.
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents
[18162-48-6] TSCA HMIS: 3-4-1-X 2kg-kg 10kg-kg 140kg-kg inquire

SIB1935.2



t-BUTYLDIMETHYLCHLOROSILANE, 1.0M in methylene chloride, 12.2-12.4% solution
$C_6H_{15}ClSi$ 150.72 124-6° 1.225
Flashpoint: 57°C (136°F)
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[18162-48-6] TSCA HMIS: 3-2-1-X 2.5kg-kg 20kg-kg 225kg-kg inquire

SIB1935.4



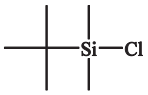
t-BUTYLDIMETHYLCHLOROSILANE, 3M in tetrahydrofuran, 51-51% solution
$C_6H_{15}ClSi$ 150.72 0.872
Flashpoint: -14°C (7°F)
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[18162-48-6] TSCA HMIS: 3-4-1-X 2kg-kg 15kg-kg 170kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}



SIB1935.5

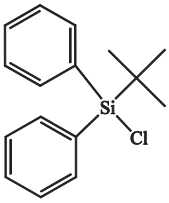
t-BUTYLDIMETHYLCHLOROSILANE, 2.85M in toluene, 48-52% solution

$C_6H_{15}ClSi$ 150.72 0.866 1.460

Flashpoint: 4°C (39°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[18162-48-6] TSCA HMIS: 3-4-1-X 2kg-kg 15kg-kg 160kg-kg inquire



SIB1968.0

t-BUTYLDIPHENYLCHLOROSILANE

$C_{16}H_{19}ClSi$ 274.87 90° / 0.015 1.074 1.5680

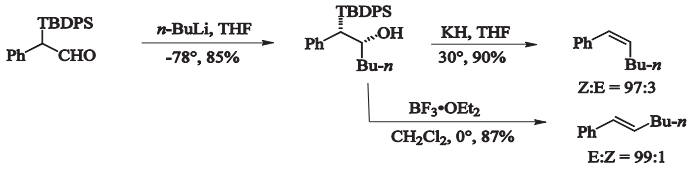
Flashpoint: 112°C (234°F)

Blocking agent

Vapor pressure, 100°: 0.02 mm

Review of synthetic utility.[1]

Due to steric bulk can be converted to α-silyl aldehydes,[2] which can be converted to olefins with high stereoselectivity.[3]

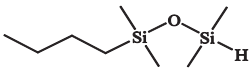


1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 135-138.
2. Barbero, A. et al. *J. Chem. Soc., Perkin Trans 1* **1995**, 1525.
3. Barbero, A. et al. *Synthesis* **2000**, 1223.

F&F: Vol. 6, p 81; Vol. 12, p 81.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[58479-61-1] TSCA HMIS: 3-1-0-X 2kg-kg 18kg-kg 200kg-kg inquire



SIB1977.0

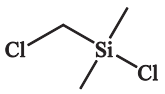
n-BUTYL-1,1,3,3-TETRAMETHYLDISILOXANE

$C_8H_{22}OSi_2$ 190.43 153° 0.782 1.398 ^{25}

Potential higher boiling organosilane reducing agent similar to SIP6729.0 - phenyldimethylsilane

HYDROLYTIC SENSITIVITY: 3: reacts with aqueous base

[12163-51-2] TSCA HMIS: 2-3-1-X 2kg-kg 14kg-kg 150kg-kg inquire



SIC2285.0

CHLOROMETHYLDIMETHYLCHLOROSILANE

CMDMCS

$C_3H_8Cl_2Si$ 143.09 115-6° 1.0865 1.4360

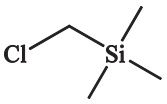
Flashpoint: 21°C (69°F)

Autoignition temperature: 355°C

F&F: Vol. 16, p 71; Vol. 17, p 75; Vol. 21, p 129.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1719-57-9] TSCA HMIS: 3-4-1-X 2kg-kg 18kg-kg 180kg-kg inquire



SIC2305.0

CHLOROMETHYLTRIMETHYLSILANE, 98%

$C_4H_{11}ClSi$ 122.67 97-8° 0.886 1.4180

Dipole moment: 2.03 debye

Flashpoint: -2°C (28°F)

Solubility, water: 0.4 g/l

Autoignition temperature: 295°C

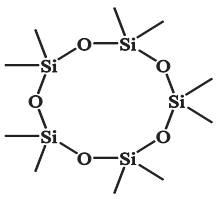
Vapor pressure, 20°: 24 mm

Reagent for Peterson olefination - conversion of cabonyls to olefins.[1]

1. Reviews: Anderson, R. *Synthesis* **1985,** 717; Chan, T. *Acc. Chem. Res.* **1977,** *10*, 422.

HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions

[2344-80-1] TSCA HMIS: 2-4-0-X 2kg-kg 15kg-kg 160kg-kg inquire



SID2650.0

DECAMETHYLCYCLOPENTASILOXANE

CYCLIC PENTAMER -D5

$C_{10}H_{30}O_5Si_5$ 370.77 210° (-44°) 0.959 1.3982

Flashpoint: 76°C (169°F)

Viscosity: 3.87 cSt

Critical temperature: 344°

ΔHcomb: -2,394 kcal/mole

Critical pressure: 1.03 mPa

ΔHvap: 12.0 kcal/mole

Vapor pressure, 50°: 2 mm

Surface tension, 20°: 18.0 mN/m

Dielectric constant: 2.50

Ring strain: 0.25 kcal/mole

Octanol/water partition coefficient, log K_{ow}: 5.5

Solubility, water: 0.03 mg/l

Dipole moment: 1.22 debye

HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

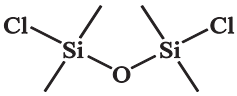
[541-02-6] TSCA HMIS: 1-2-0-X 2kg-kg 17kg-kg 180kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}



SID3372.0

1,3-DICHLOROTETRAMETHYLDISILOXANE

$C_4H_{12}Cl_2OSi_2$ 203.22 138° (-37°) 1.039 1.4054

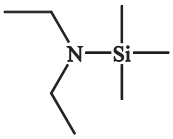
Flashpoint: 15°C (59°F)

Vapor pressure, 25°: 8 mm

Diol protection reagent

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[2401-73-2] TSCA HMIS: 3-4-1-X 2kg-kg 18kg-kg 200kg-kg inquire



SID3398.0

(DIETHYLAMINO)TRIMETHYLSILANE

TMSDEA

$C_7H_{19}NSi$ 145.32 126-7° (-10°) 0.7627 1.4109

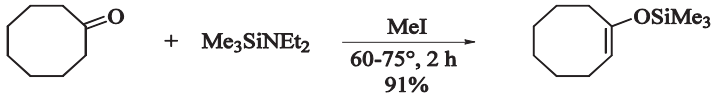
ΔHform: -87.7 kcal/mole Flashpoint: 10°C (50°F)

Silylation reagent

Review of synthetic utility.[1]

Reacts with benzynes and aldehydes to form o-aminobenzyl alcohols.[2]

Provides a convenient synthesis of enoltrimethylsilyl ethers.[3]

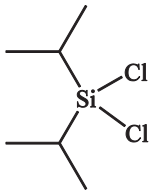


1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 598-599.
2. Yoshida, H. et al. *Org. Lett.* , *16*, 2204.

F&F: Vol. 3, p 317; Vol. 4, p 544; Vol. 6, p 634; Vol. 18, p 382.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[996-50-9] TSCA HMIS: 3-4-1-X 2kg-kg 14kg-kg 150kg-kg inquire



SID3537.0

DIISOPROPYLDICHLOROSILANE

$C_6H_{14}Cl_2Si$ 185.17 64-5° / 25 1.026 1.4450

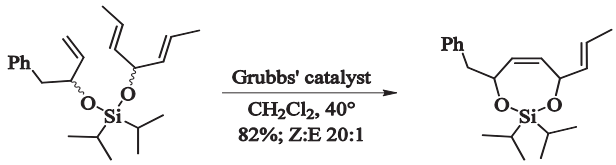
Flashpoint: 43°C (109°F)

Review of synthetic utility.[1]

Forms bis(blocked) or tethered alcohols.[2,3]

Used as tether in ring-closing-metathesis (RCM) reaction.[4]

The bifunctional nature of the reagent allows for the templating of diverse groups in intermolecular reactions and ring formation.[5]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 222-228.
2. Bradford, C. et al. *Tetrahedron Lett.* **1995,** *36*, 4189.
3. Hutchinson, J. et al. *Tetrahedron Lett.* **1991,** *32*, 573.
4. Evans, P. A. et al. *J. Am. Chem. Soc*. **2003**, *125*, 14702.
5. Evans, P. A. et al. *Angew. Chem., Int. Ed. Engl.* **2003**, *42*, 1734.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

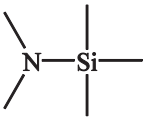
[7751-38-4] HMIS: 3-2-1-X 2kg-kg 18kg-kg 200kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}



SID3605.0

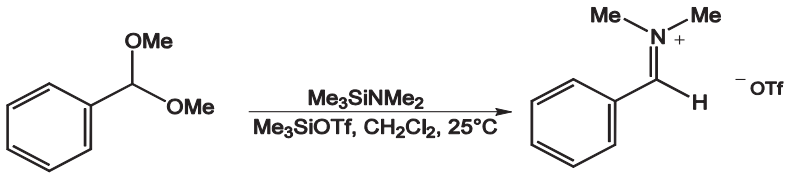
(N,N-DIMETHYLAMINO)TRIMETHYLSILANE

TMSDMA, PENTAMETHYLSILANAMINE

$C_5H_{15}NSi$	117.27	85-6°	0.741	1.3970
ΔHvap: 7.6 kcal/mole	Flashpoint: -19°C (-2°F)			

Selectively silylates equatorial hydroxyl groups in prostaglandin synthesis.[1]

Stronger silylation reagent than HMDS; silylates amino acids.[2]



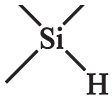
Dialkylaminotrimethylsilanes are used in the synthesis of pentamethinium salts.[3]

With aryl aldehydes converts ketones to α,β-unsaturated ketones.[4]

1. Yankee, E. et al. *J. Am. Chem. Soc.* **1972,** *94*, 3651.
2. Rühlman, K. *Chem. Ber.* **1961,** *94*, 1876.
3. Kořínek, M. et al. *Synthesis* **2009**, 1291.
4. Mojtahedi, M. M. et al. *Synthesis*, **2011**, 3821.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

3-91-2]	TSCA	HMIS: 3-4-1-X	2kg-kg	13kg-kg		140kg-kg inquire



070.0

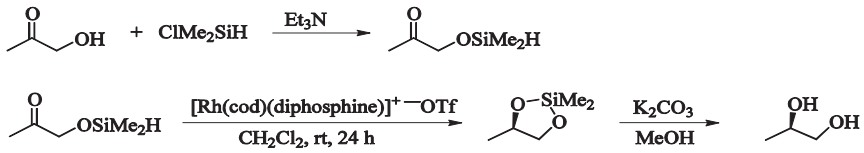
ETHYLCHLOROSILANE, 98%

ClSi	94.62	36°	(-111°)	0.868	1.3827
ΔHvap: 6.27 kcal/mole	Flashpoint: -25°C (-13°F)				
Surface tension: 17.1 mN/m	Critical temperature: 202°				
	Specific heat: 0.27 cal/g/°				
	Thermal conductivity: 0.116 W/m°K				

Undergoes hydrosilylation reactions

Review of synthetic utility.[1]

Enantioselectively converts α-hydroxyketones to 1,2-diols.[2]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 228-230.
2. Burk, M. J.; Feaster, J. E. *Tetrahedron Lett.* **1992**, *33*, 2099.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1066-35-9]	TSCA	HMIS: 3-4-2-X	15kg-kg		160kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)		$_4^{20}D$	n_D^{20}

SID4120.0

DIMETHYLDICHLOROSILANE, 98%

$C_2H_6Cl_2Si$ 129.06 70-1° (-76°) 1.0637 1.4055

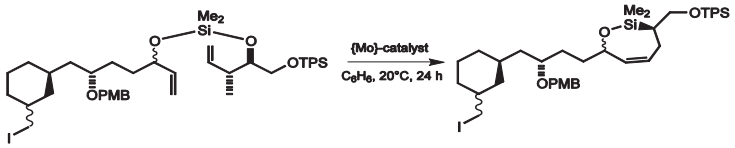
AIR TRANSPORT FORBIDDEN

Viscosity: 0.47 cSt
Vapor pressure, 17°: 100 mm
Specific heat: 0.22 cal/g/°
ΔHcomb: -491 kcal/mole
ΔHvap: 8.0 kcal/mole
Surface tension: 20.1 mN/m
Coefficient of thermal expansion: 1.3×10^{-3}

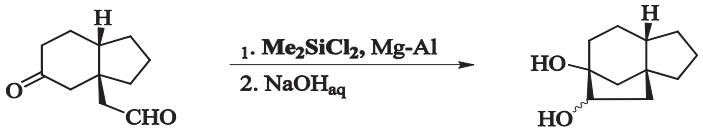
Flashpoint: -10°C (14°F)
TOXICITY: ihl rat, LC50: 930 ppm/4H
Autoignition temperature: 410°C
Critical temperature: 247.2°
Critical pressure: 34.4 atm
Flammability limit: 3.4-10.4%

Review of synthetic utility.[1]

Employed in the tethering of two olefins for the cross metathesis-coupling step in the synthesis of Attenol A.[2]



Aids in the intramolecular Pinacol reaction.[3]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 228-230.
2. Van de Weghe, P. et al. *Org. Lett.* **2002,** *4*, 4105.
3. Corey, E. J.; Carney, R. L. *J. Am. Chem. Soc.* **1971**, *93*, 7318.
F&F: Vol. 3, p 114; Vol. 4, p 183.

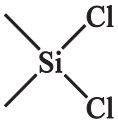
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[75-78-5] TSCA HMIS: 3-4-2-X 2kg-kg 18kg-kg 180kg-kg inquire

** zDR-S-019 or zCYL-S-019 container required - not included*

SID4120.1

DIMETHYLDICHLOROSILANE, 99+%



$C_2H_6Cl_2Si$ 129.06 70-1° (-76°) 1.0637 1.4055

AIR TRANSPORT FORBIDDEN

Redistilled
Flashpoint: -10°C (14°F)

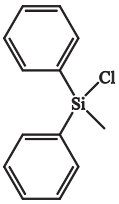
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[75-78-5] TSCA HMIS: 3-4-2-X 18kg-kg 180kg-kg inquire

** zDR-S-019 or zCYL-S-019 container required - not included*

SID4552.0

DIPHENYLMETHYLCHLOROSILANE



$C_{13}H_{13}ClSi$ 232.78 295° (-22°) 1.128 1.5742

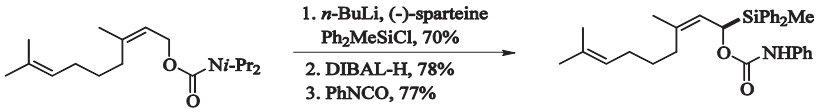
Viscosity: 5.3 cSt
ΔHvap: 149 kcal/mole
Surface tension: 40.0 mN/m

Flashpoint: 141°C (286°F)
Vapor pressure, 125°: 3 mm
Thermal conductivity: 0.112 W/m°C

Review of synthetic utility.[1]

α-Silylates esters, lactones; precursors to silyl enolates.[2]

C-Silylates carbamates as shown in the enantioselective example w/ a neryl carbamate.[3]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 381-388.
2. Larson, G. L.; Fuentes,L. M. *J. Am. Chem. Soc.* **1981,** *103*, 2418.
3. Duvold, T. et al. *Biorg. Med. Chem. Lett.* **2002**, *12*, 3569 and references therein.
F&F: Vol. 10, p 91; Vol. 12, p 321; Vol. 13, p 74.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[144-79-6] TSCA HMIS: 3-1-1-X 2.5kg-kg 20kg-kg 200kg-kg inquire

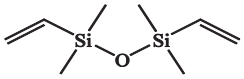
 2.5 liter (kg)

 5 gallon/ 19L cyl. (kg)

 55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SID4613.0



1,3-DIVINYLTETRAMETHYLDISILOXANE

$C_8H_{18}OSi_2$ 186.40 139° (-99°) 0.811 1.4123

Flashpoint: 24°C (76°F)

TOXICITY: oral rat, LD50 >12,500 mg/kg

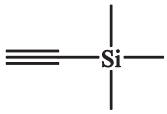
Potential vinyl nucleophile in cross-coupling reactions.[1]

1. Larson, G. L. "*Silicon-Based Cross-Coupling Reagents*" Gelest, Inc. 2011.

HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[2627-95-4] TSCA HMIS: 2-3-0-X 2kg-kg 15kg-kg 160kg-kg inquire

SIE4904.0



ETHYNYLTRIMETHYLSILANE, 98%

TRIMETHYLSILYLACETYLENE

$C_5H_{10}Si$ 98.22 52° 0.709 1.3880

Vapor pressure, 20°: 214 mm

Flashpoint: -26°C (-15°F)

Autoignition temperature: 310°C

Review of synthetic utility.[1]

Ethynylates aromatic compounds.[2]

Precursor to trimethylsilylethynyl copper reagent.[3]

Lithiated derivative (n-BuLi treatment) reacts with halotriazines to produce monomers.[4]

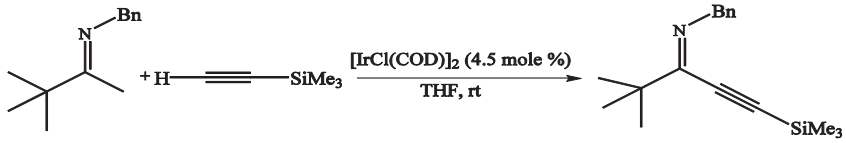
Employed in ortho ethenylation of phenols.[5]

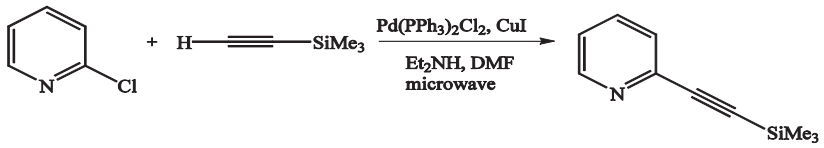
Undergoes Diels-Alder reactions with butadienes.[6]

Converts imines to propargyl amines.[7]

Forms propargylic amines from aldehydes and amines in aqueous system.[8]

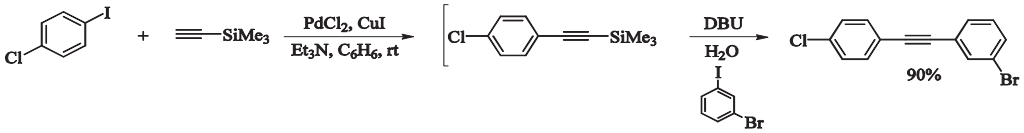
Regioselectively forms either regioisomeric enyne upon addition to propargyl amines depending on catalyst employed.[9]





Reacts w/ aryl aldehydes to form diethynylmethane derivatives.[10]

Useful in the preparation of unsymmetrical diarylacetylenes.[11]

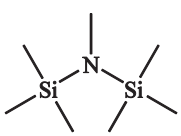


1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis,* Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 569-580.
2. Austin, W. et al. *J. Org. Chem.* **1981,** *46*, 2280.
3. Sakata, H. et al. *Tetrahedron Lett.* **1987,** *28*, 5719.
4. Kouveetakis, J. et al. *Chem. Mater.* **1994,** *6*, 636.
5. Kobayashi, K.; Yamaguchi, M. *Org. Lett.* **2001,** *3*, 241.
6. Paik, S.-J. et al. *Org. Lett.* **1999,** *1*, 2045.
7. Fischer, C.; Carreira, E. M. *Org. Lett.* **2001,** *3*, 4319.
8. Wei, C.; Li, C.-J. *J. Am. Chem. Soc.* **2003**, *125*, 9584.
9. Matsuyama, N. et al. *J. Org. Chem.* **2009**, *74*, 3576.
10. Girard, D. et al. *Tetrahedron Lett.* **2007**, *48*, 6022.
11. Mio, M. et al. *Org. Lett.* **2002**, *4*, 3199.

HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions

[1066-54-2] TSCA HMIS: 2-4-1-X 1.5kg-kg 13kg-kg 140kg-kg inquire

SIH5843.0



HEPTAMETHYLDISILAZANE

BIS(TRIMETHYLSILYL)METHYLAMINE

$C_7H_{21}NSi_2$ 175.42 148-50° 0.798 1.418

Dielectric constant: 2.25

Flashpoint: 27°C (81°F)

For GC derivatization

Reaction w/ isocyanates affords unsymmetrical carbodiimides

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[920-68-3] TSCA HMIS: 3-3-1-X 2kg-kg 14kg-kg 150kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)

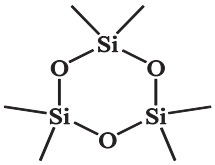

55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIH6105.0

HEXAMETHYLCYCLOTRISILOXANE, 95%

D3



$C_6H_{18}O_3Si_3$ Contains other cyclics 222.46 134° (64-6°) 1.02

Flashpoint: 35°C (95°F)

ΔHform: 356 kcal/mole
ΔHvap: 9.5 kcal/mole
ΔHfus: 3.7 kcal/mole
ΔHpolym: 14.5 kcal/mole

Vapor pressure, 25°: 10 mm
Dipole moment: 0.0 debye
Ring strain: 2.5 kcal/mole
Surface tension, 74°: 13.3 mN/m
Ea, polym: 17.6 kcal/mole

Review of synthetic utility.[1]

Reacts with three equivalents of an organolithium reagent to give derivatized dimethylsilanols.[2,3]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 310-313.
2. Frye, C. L. et al. *J. Org. Chem.* **1970**, *35*, 1308.
3. Sieburth, S. M.; Fensterbank. L. *J. Org. Chem.* **1993**, *58*, 6314.

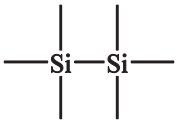
HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[541-05-9] TSCA HMIS: 1-3-0-X 10kg-kg 150kg-kg inquire

SIH6109.0

HEXAMETHYLDISILANE

HMD



$C_6H_{18}Si_2$ 146.38 112-3° (12-14°) 0.7293 1.4214

Viscosity: 1.0 cSt
ΔHcomb: 1,411.7 kcal/mole
ΔHform (gas): -118 kcal/mole
ΔHvap: 9.5 kcal/mole

Flashpoint: -1°C (30°F)
Vapor pressure, 20°: 22.9 mm
Ea decomposition at 545°K: 80.5 kcal/mole
Rotational barrier, Si-Si: 1.05 kcal/mole
Secondary NMR reference: δ = 0.045

Review of synthetic utility.[1]

Source for trimethylsilyl anion.[2,3]

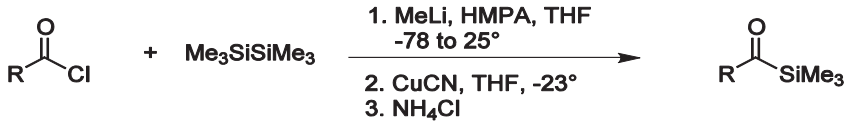
Replaces aromatic nitriles with TMS groups in presence of $[RhCl(cod)]_2$.[4]

Brings about the homocoupling of arenesulfonyl chlorides in the presence of $Pd_2(dba)_3$.[5]

Used as a solvent for the direct borylation of fluoroaromatics.[6]

Reacts with alkynes to form siloles.[7]

Undergoes the silylation of acid chlorides to give acylsilanes.[8]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 278-284.
2. Shippey, M. A. et al. *J. Org. Chem.* **1977,** *42*, 2654.
3. F&F: Vol. 10, p 96; Vol.11, p 253.
4. Tobisu, M. et al. *J. Am. Chem. Soc.* *128*
46, 7125.
6. Teltewskoi, M. et al. *Angew. Chem., Int. Ed. Engl.* **2010**, *49*, 3947.
7. Akagawa, K. et al. *Synlett* **2011**, *22*, 813.
8. Capperucci, A. et al. *J. Org. Chem.* **1988**, *53*, 3612.

HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[1450-14-2] TSCA HMIS: 2-4-0-X 1.5kg-kg 13kg-kg 150kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

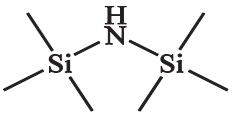
Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}

SIH6110.0

1,1,1,3,3,3-HEXAMETHYLDISILAZANE, 98%

HMDS, HMDZ

$C_6H_{19}NSi_2$ 161.39 126-7° (<-76°) 0.7742 1.4080



Flashpoint: 12°C (54°F)

Viscosity: 0.90 cSt
ΔHcomb: 6,052 kcal/mole
ΔHvap: 8.3 kcal mole
Dipole moment: 0.37 debye
Surface tension: 18.2 mN/m
Specific wetting surface: 485 m^2/g

TOXICITY: oral rat, LD50: 850 mg/kg
TOXICITY: ipr mouse, LDLo: 650 mg/kg
Autoignition temperature: 325˚C
Vapor pressure, 50°: 50 mm
pKa: 7.55
Dielectric constant: 1000 Hz: 2.27
Ea, reaction w/SiO_2 surface: 17.6 kcal/mole

Versatile silylation reagent; creates hydrophobic surfaces

Review of synthetic utility.[1]

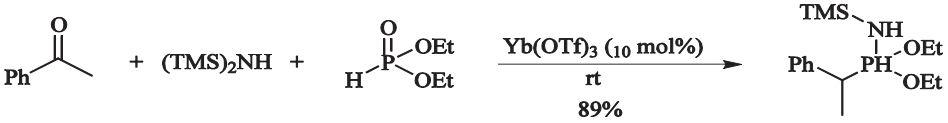
Review on organosilane protecting groups.[2]

Converts acid chlorides and alcohols to amines in a three-component reaction.[3]

Reacts with formamide and ketones to form pyrimidines.[4]

Lithium reagent reacts w/ aryl chlorides or bromides to provide primary anilines.[5]

Used to convert ketones to α-aminophosphonates.[6]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 317-319.
2. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
3. Li, H.-H. et al. *Eur. J. Org. Chem.* **2008**, 3623.
4. Tyagarajan, S.; Chakravarty, P. K. *Tetrahedron Lett.* **2005**, *46*, 7889.
5. Lee, S.; Jorgensen, M.; Hartwig, J. F. *Org. Lett.* **2001**, *3*, 2729.
6. Heo, Y. et al. *Tetrahedron Lett.* **2012**, *53*, 3897.

F&F: Vol. 1, p 427; Vol. 2, p 159; Vol. 5, p 323; Vol. 6, p 273; Vol. 7, p 167; Vol. 8, p 29; Vol. 9, p 234; Vol. 11, p 38; Vol. 12, p 239; Vol. 13, p 141; Vol. 14, p 300.

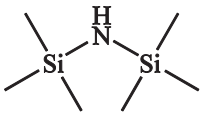
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[999-97-3] TSCA HMIS: 2-4-1-X 1.5kg-kg 14kg-kg 150kg-kg inquire

SIH6110.1

1,1,1,3,3,3-HEXAMETHYLDISILAZANE, 99%

HMDS, HMDZ <5 ppm chloride



$C_6H_{19}NSi_2$ 161.39 126-7° (<-76°) 0.7742 1.4080

TOXICITY: ipr mouse, LDLo: 650 mg/kg

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

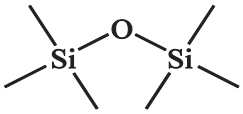
[999-97-3] TSCA HMIS: 2-4-1-X 1.5kg-kg 14kg-kg 150kg-kg inquire

SIH6115.0

HEXAMETHYLDISILOXANE, 98%

MM, HMDSO

$C_6H_{18}OSi_2$ 162.38 99-100° (-67°) 0.7636 1.3774



Flashpoint: -1°C (30°F)

Viscosity: 0.65 cSt
ΔHcomb: -1,401 kcal/mole
ΔHvap: 7.2 kcal/mole
Dipole moment: 0.78 debye
Surface tension: 15.9 mN/m
Solubility parameter: 6.8
Solubility in water: 930 ppb

TOXICITY: oral gpg LDLo: 32,500 mg/kg
Autoignition temperature: 340˚C
Vapor pressure, 30°: 55 mm
Critical temperature: 243°
Critical pressure: 1.91 mPa
Specific heat: 0.46 cal/g/˚
Dielectric constant: 2.17
Henry's law constant: 4.5 atm-m^3/mole

Review of synthetic utility.[1]

Provides an excellent alternative to Lawesson's reagent for the conversion of a carbonyl to a thiocarbonyl.[2]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 313-317.
2. Curphey, T. J. *J. Org. Chem.* **2002**, *67*, 6461.

HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

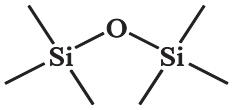
[107-46-0] TSCA HMIS: 1-3-0-X 1.5kg-kg 14kg-kg 150kg-kg inquire

 2.5 liter (kg)

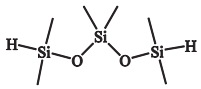
 5 gallon/ 19L cyl. (kg)

 55 gallon (kg)

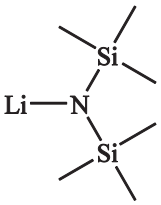
Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}



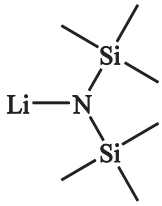
SIH6115.1
HEXAMETHYLDISILOXANE, 99.9%
$C_6H_{18}OSi_2$ 162.38 99-100° (-67°) 0.7636 1.3774
NMR grade
HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems
[107-46-0] TSCA HMIS: 1-3-0-X 1.5kg-kg 14kg-kg 150kg-kg inquire



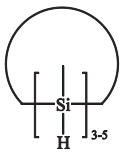
SIH6117.0
1,1,3,3,5,5-HEXAMETHYLTRISILOXANE
M'DM'
$C_6H_{20}O_2Si_3$ 208.48 128° 0.8222 1.3811
Flashpoint: 20°C (68°F)
Undergoes hydrosilylation reactions
Potential higher boiling organosilane reducing agent similar to SIT7546.0 - 1,1,3,3-tetramethyldisiloxane
HYDROLYTIC SENSITIVITY: 3: reacts with aqueous base
[1189-93-1] TSCA HMIS: 1-4-1-X 2kg-kg 14kg-kg 160kg-kg inquire



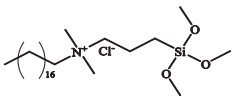
SIL6467.2
LITHIUM HEXAMETHYLDISILAZIDE, 0.85M in hexane
$C_6H_{18}LiNSi_2$ 19 - 21 wgt % 167.33 0.716
Flashpoint: -23°C (-9°F)
Review of synthetic utility.[1]
Used in the use of chloroform in the trichloromethylation of a ketone in a scaled-up synthesis of β-secretase inhibitor, spiropiperidine.[2]
1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 356-367.
2. Henegar, K. E. et al. *Org. Process. Res. Dev.* **2013**, *17*, 985.
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[4039-32-1] TSCA HMIS: 3-4-1-X 2.5kg-kg 12.5kg-kg 135kg-kg inquire



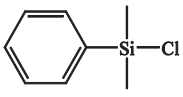
SIL6467.4
LITHIUM HEXAMETHYLDISILAZIDE, 1.25M in tetrahydrofuran
$C_6H_{18}LiNSi_2$ 23 - 25 wgt % 167.33 0.891
Flashpoint: -14°C (7°F)
Review of synthetic utility.[1]
1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 356-367.
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[4039-32-1] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 165kg-kg inquire



SIM6510.0
METHYLHYDROCYCLOSILOXANES, 95%
$(CH_3HSiO)_{3\text{-}5}$ 180-300 134-204° 0.99 1.39
Flashpoint: 31°C (88°F)
Undergoes hydrosilylation reactions
HYDROLYTIC SENSITIVITY: 3: reacts with aqueous base
[68037-53-6] TSCA HMIS: 2-3-1-X 3kg-kg 18kg-kg 160kg-kg inquire



SIO6620.0
OCTADECYLDIMETHYL(3-TRIMETHOXYSILYLPROPYL)AMMONIUM CHLORIDE, 60% in methanol
$C_{26}H_{58}ClNO_3Si$ 496.29 0.89
Contains 3-5% $Cl(CH_2)_3Si(OMe)_3$ Flashpoint: 15°C (59°F)
Autoignition temperature: 230°C
Employed as a glass lubricant
Application as immobilizable antimicrobial reported.[1]
1. White, W. et al. In *Silanes, Surfaces & Interfaces;* Leyden, D., Ed.; Gordon & Breach: 1986; p.107.
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water
[27668-52-6] TSCA HMIS: 3-4-0-X 2kg-kg 16kg-kg 190kg-kg inquire



SIP6728.0
PHENYLDIMETHYLCHLOROSILANE
$C_8H_{11}ClSi$ 170.71 192-3° 1.032 1.5082
Viscosity: 1.4 cSt Flashpoint: 61°C (142°F)
ΔHvap: 11.4 kcal/mole Vapor pressure, 25°: 1 mm
Forms cuprate.[1]
1. Fleming, I.; Terrett, N. K. *Tetrahedron Lett.* **1984,** *25*, 5103.
F&F: Vol. 7, p 133; Vol. 8, p 196; Vol. 11, p 209; Vol. 12, p 210.
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents
[768-33-2] TSCA HMIS: 3-2-1-X 2kg-kg 16kg-kg 180kg-kg inquire


2.5 liter (kg)

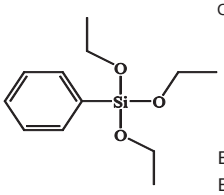

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	n_4^{20} D	n_D^{20}

SIP6821.0

PHENYLTRIETHOXYSILANE

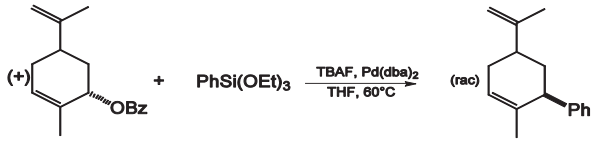


$C_{12}H_{20}O_3Si$ 240.37 112-3° / 10 0.996 1.4718

Viscosity, 25°: 1.7 cSt
Dipole moment: 1.85 debye
Surface tension: 28 mN/m
Dielectric constant: 4.12

Flashpoint: 96°C (205°F)
TOXICITY: oral rat, LD50: 2,830 mg/kg
Autoignition temperature: 265°C
Vapor pressure, 75°: 1 mm
Coefficient of thermal expansion: 0.9×10^{-3}

Electron donor component of polyolefin polymerization catalyst complexes
Extensive review on the use in silicon-based cross-coupling reactions.[1]
Phenylates allyl benzoates.[2]



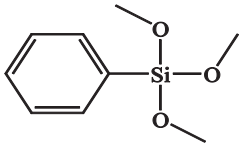
1. Denmark, S. E. et al. *Organic Reactions,* Vol. 75, Denmark, S. E. ed., John Wiley and Sons, 233, **2011**.
2. Correia, R.; DeShong, P. *J. Org Chem.* **2001,** *66*, 7159.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[780-69-8] TSCA HMIS: 2-1-1-X 2kg-kg 17kg-kg 200kg-kg inquire

SIP6822.0

PHENYLTRIMETHOXYSILANE

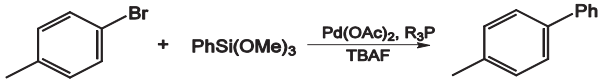


$C_9H_{14}O_3Si$ 198.29 211° (-25°) 1.064 1.4734

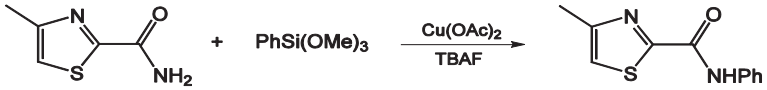
Viscosity, 25°: 2.1 cSt
Dipole moment: 1.77 debye
Dielectric constant: 4.44

Flashpoint: 86°C (187°F)
TOXICITY: ivn mouse, LD50: 180 mg/kg
Vapor pressure, 108°: 20 mm

Cross couples with aryl halides.[1]



Phenylates heteroaromatic carboxamides.[2]



Directly couples with 1° alkyl bromides and iodides.[3]
Converts carboxylic acids to phenyl esters and vinyl carboxylates.[4]
Converts arylselenyl bromides to arylphenylselenides.[5]
Reacts with anhydrides to transfer both phenyl and methoxy and thus form the mixed diester.[6]
Used in the nickel-catalyzed direct phenylation of C-H bonds in heteroaromatic system such as benzoxazoles.[7]
Immobilization reagent for aligned metallic single wall nanotubes (SWNT).[8,9]
Extensive review on the use in silicon-based cross-coupling reactions.[10]

1. Mowery, M. E.; DeShong, P. *J. Org. Chem.* **1999**, *64*, 1684.
2. Lam, P. Y. S. et al. *Tetrahedron Lett.* **2001.** *42*, 2427.
3. Young, J.-Y.; Fu, G. C. *J. Am. Chem. Soc*. 2003, 125, 5616.
4. Luo, F. et al. *Synthesis* **2010**, 2005.
5. Bhadra, S. et al. *J. Org. Chem.* **2010**, *75*, 4864.
6. Luo, F. et al. *J. Org. Chem.* **2010**, *75*, 5379.
7. Hachilya, H. et al. *Angew. Chem., Int. Ed. Engl.* **2010**, *49*, 2202.
8. LeMieux, M. *Science* **2008**, *321*, 101.
9. Nish, A. et al. *Nature Nanotechnol.* **2007**, *2*, 640.
10. Denmark, S. E. et al. *Organic Reactions,* Vol. 75, Denmark, S. E. ed., John Wiley and Sons, 233, **2011**.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[2996-92-1] TSCA HMIS: 3-2-1-X 2kg-kg 18kg-kg 200kg-kg inquire

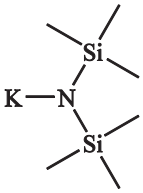

2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIP6890.0



POTASSIUM HEXAMETHYLDISILAZIDE, 11% in toluene, 0.5M

POTASSIUM BIS(TRIMETHYLSILYL)AMIDE

$C_6H_{18}KNSi_2$ 199.49 (194-5°) 0.877

Flashpoint: 4°C (39°F)

Review of synthetic utility.[1]

Sterically hindered base.[2]

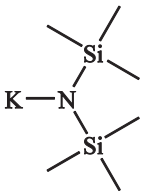
Anionic initiator for preparation of polyalkylene oxides.[3]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 432-453.
2. Es-Sayed, M. et al. *Synlett* **1992,** *12*, 962.
3. Yokoyama, M. *Bioconjugate Chem.* **1992,** *3*, 275.
F&F: Vol. 4, p 407; Vol. 10, p 38, p 326; Vol. 13, p 257; Vol. 16, p 282.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[40949-94-8] HMIS: 3-4-1-X 2kg-kg 15kg-kg 160kg-kg inquire

SIP6890.1



POTASSIUM HEXAMETHYLDISILAZIDE, 20% in THF

POTASSIUM BIS(TRIMETHYLSILYL)AMIDE

$C_6H_{18}KNSi_2$ 199.49 0.898

Flashpoint: -14°C (7°F)

Sterically hindered base.[1]

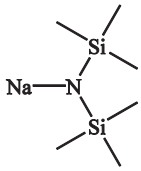
Employed in the fluoroform trifluoromethylation of silanes, boranes, sulfur and non-enolizable ketones.[2]

1. *Synlett* **1992,** *12*, 962.
2. Prakash, G. K. S.; Jog, P. V.; Batamack, P. T. D.; Olah, G. A. *Science,* **2012***, 338*, 1324.
F&F: Vol. 4, p 407; Vol. 10, p 38, p 326; Vol. 13, p 257; Vol. 16, p 282.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[40949-94-8] HMIS: 3-4-1-X 2kg-kg 15kg-kg 160kg-kg inquire

SIS6980.2



SODIUM BIS(TRIMETHYLSILYL)AMIDE, 2M in tetrahydrofuran

$C_6H_{18}NNaSi_2$ 183.37 0.90

Flashpoint: -14°C (7°F)

Review of synthetic utility.[1]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis,* Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 468-478.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1070-89-9] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 170kg-kg inquire

SIS6985.0

SODIUM MONTMORILLONITE CLAY

BENTONITE

$(Na,_{0\text{-}5}Ca)_{0\text{-}7}(AL,Mg,Fe)_4(Si,Al)_8O_{20}(OH)_4{\cdot}XH_2O$ 2.3 1.48

Particle size <24 µm Mohs hardness: 1.5-2.0

Typical bulk density, not compacted: 0.48 g/cm^3 Surface area: >750 m^2/g

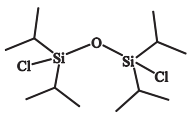
Pillared, interlayered clay - may be exfoliated for composite and catalyst applications.[1]

1. Gil, A. et al. *Catal. Rev.* **2000,** *42*, 145.

HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[1318-93-0] TSCA-E HMIS: 1-0-0-X 2kg-kg 10kg-kg 100kg-kg inquire

SIT7273.0



1,1,3,3-TETRAISOPROPYL-1,3-DICHLORODISILOXANE

$C_{12}H_{28}Cl_2OSi_2$ 315.43 120° / 1.5 0.986 1.4543

Flashpoint: 76°C (169°F)

Review of synthetic utility.[1]

Review on organosilane protecting groups.[2]

Reagent for protection of 3',5' hydroxy nucleosides.[3,4]

Key review in natural products synthesis.[5]

Protects the four equatorial hydroxyls of inositol in a single step.[6]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 230-233.
2. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
3. Kanaya, E. N. et al. *Biochemistry* **1987,** *26*, 7159.
4. Markiewicz, W. *J. Chem. Res.* **1979,** 24.
5. Ziegler, T. et al. *Trends Org. Chem.* **1997,** *6*, 91.
6. Martin-Lomas, M. et al. *Eur. J. Org. Chem.* **2000**, 1539.
F&F: Vol. 16, p 125.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[69304-37-6] HMIS: 3-2-1-X 2kg-kg 18kg-kg 190kg-kg inquire

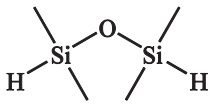

2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}

SIT7546.0

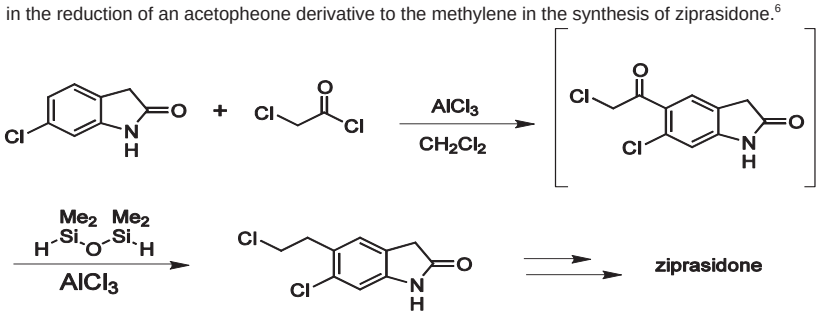


1,1,3,3-TETRAMETHYLDISILOXANE, 98%

$C_4H_{14}OSi_2$ 134.33 70-1° 0.757 1.3669

Viscosity, 20°: 0.56 cSt.
ΔHcomb: 1,047 kcal/mole
ΔHvap: 7.25 kcal/mole
Flashpoint: -12°C (10°F)
TOXICITY: oral mouse, LD50: 3,000 mg/kg
Autoignition temperature: 208°C
Vapor pressure, 27°: 194.8 mm

Employed in reductive halogenation of aldehydes and epoxides.[1]
Used to link ferrocenylsilane, polyolefin block copolymers into stable cylindrical forms.[2]
Employed in the high-yield reduction of amides to amines in the presence of other reducible groups.[3]
Reduces anisoles to arenes.[4]
Hydrosilylates terminal alkynes to form alkenylsilanes capable of cross-coupling w/ aryl and vinyl halides.[5]
Employed in the reduction of an acetopheone derivative to the methylene in the synthesis of ziprasidone.[6]



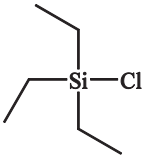
Hydrosilylates terminal alkynes to form alkenylsilanes capable of cross-coupling w/ aryl and vinyl halides.[5]

1. Azipura et al. *Tetrahedron Lett.* **1984,** *25*, 3123.
2. Wang, X.-S. et al. *J. Am. Chem. Soc.* **2003**, *125*, 12686.
3. Hanada, S. et al. *J. Am. Chem. Soc.* **2009**, *131*, 15032.
4. Alvarez-Bercedo, P.; Martin, R. *J. Am. Chem. Soc.* **2010**, *132*, 17352.
5. Denmark, S. E.; Wang, Z. *Org. Lett.* **2001**, *3*, 1073.
6. Nadkami, D.; Hallissey, J. F. *Org. Proc. Res. Dev.* **2008**, *12*, 1142.

HYDROLYTIC SENSITIVITY: 3: reacts with aqueous base

[3277-26-7] TSCA HMIS: 2-4-1-X 1.5kg-kg 14kg-kg 145kg-kg inquire

SIT8250.0



TRIETHYLCHLOROSILANE

$C_6H_{15}ClSi$ 150.72 144-5° (-50°) 0.8968 1.4313

ΔHvap: 9.8 kcal/mole
Vapor pressure, 25°: 7 mm
Flashpoint: 30°C (86°F)
Autoignition temperature: 280°C

Forms silylated derivatives of alcohols stable to Grignard conditions.[1]

1. Arkles, B. In *Handbook of Grignard Reagents;* Silverman, G., Ed; Marcel Dekker: 1996; p667.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[994-30-9] TSCA HMIS: 3-3-1-X 2kg-kg 16kg-kg 180kg-kg inquire


2.5 liter (kg)

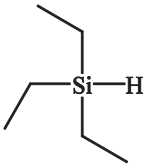

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIT8330.0

TRIETHYLSILANE, 98%



$C_6H_{16}Si$ 116.28 107-8° (-157°) 0.7309 1.4123

Viscosity: 4.9 cSt. Flashpoint: -3°C (27°F)

ΔHcomb: -1,272 kcal/mole Autoignition temperature: 250°C

ΔHform: -41 kcal/mole Vapor pressure, 20°: 40 mm

Dipole moment: 0.75 debye

Surface tension: 20.7 mN/m

Versatile reducing agent; key reviews.[1,2,3,4]

Review on organosilane protecting groups.[5]

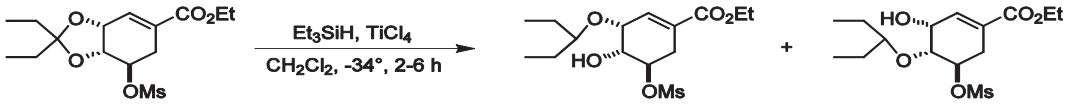
Silylates tertiary alcohols in presence of tris(pentafluorophenyl)borane.[6]

Silylates arenes in presence of Ru catalyst and t-butylethylene.[7]

Used in reductive cyclization of ynals.[8]

Readily converted directly to triethylsilyl carboxylates.[9]

Employed in the regioselective reduction of a ketal in the synthesis of Tamiflu.[10]



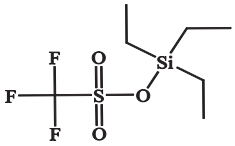
1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 506-514.
2. Nagai, Y. *Org. Prep. Proc. Int.* **1980,** *12*, 13.
3. F&F: Vol. 1, p 1218; Vol. 2, p 433; Vol. 3, p 304; Vol. 4, p 562; Vol. 6, p 652; Vol. 7, p 387; Vol. 8, p 501; Vol. 9, p 418; Vol. 10, p 483; Vol. 11, p 482; Vol. 15, p 338; Vol. 16, p 356; Vol. 17, p 367.
4. Larson, G. L.; Fry, J. L. *Ionic and Organometallic-Catalyzed Organosilane Reductions*, Volume 71, Denmark, S. E., Ed. John WIley and Sons, 2009
5. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
6. Blackwell, J. M. et al. *J. Org. Chem.* **1999,** *64*, 4887.
7. Ezbiansky, K. et al. *J. Organometal. Chem.* **1998,** *17*, 1455.
8. Tang, X.-Q.; Montgomery, J. *J. Am. Chem. Soc.***1999,** *121*, 6098.
9. Chahan, M. et al. *Org. Lett.* **2000,** *2*, 1027.
10. Federspiel, M. et al. *Org. Proc. Res. Dev.* **1999**, *3*, 266.

HYDROLYTIC SENSITIVITY: 3: reacts with aqueous base

[61 TSCA HMIS: 2-4-1-X 2.5kg-kg 13kg-kg 150kg-kg inquire

SIT8335.0

TRIETHYLSILYLTRIFLUOROMETHANESULFONATE



$C_7H_{15}F_3O_3SSi$ 264.34 85-6° / 12 1.169 1.3892

Flashpoint: 72°C (162°F)

Review of synthetic utility.[1]

Triethylsilylation reagent.[2]

Review on organosilane protecting groups.[3]

In combination with lutidine selectively converts acetals to aldehydes without affecting silyl ethers.[4]

Reacts with esters to form both the silyl ketene acetal and the α-triethylsilyl ester.[5]

1. Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 517-518.
2. Emde, H. et al. *Synthesis* **1982,** 1.
3. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
4. Fujioka, H. et al. *J. Am. Chem. Soc.* **2006**, *128*, 5930.
5. Emde, H. et al. *Liebigs Ann. Chem.***1981**, 1643.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[79271-56-0] HMIS: 4-2-1-X 2.5kg-kg 20kg-kg

 2.5 liter (kg)

 5 gallon/ 19L cyl. (kg)

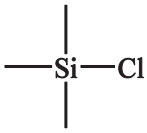
 55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIT8510.0

TRIMETHYLCHLOROSILANE

TMCS



C_3H_9ClSi 108.64 57.6° (-57.7°) 0.8580 1.3885

Viscosity: 0.47 cSt
Flashpoint: -27°C (-17°F)
ΔHcomb: -714 kcal/mole
TOXICITY: ihl mouse, LDLo: 500 mg/m^3/10M
ΔHform: -84.5 kcal/mole
Autoignition temperature: 395°C
ΔHvap: 6.6 kcal/mole
Vapor pressure, 20°: 190 mm
Dipole moment: 2.09 debye
Vapor pressure, 50°: 591 mm
Surface tension: 17.8 mN/m
Critical temperature: 224.6°
Specific heat: 0.42 cal/g/°
Critical pressure: 31.6 atm
Coefficient of thermal expansion: 1.2 x 10^{-3}

Most economical and broadly used silylation reagent

Review of synthetic utility.[1]

Review on organosilane protecting groups.[2]

Enhances Claisen rearrangement.[3]

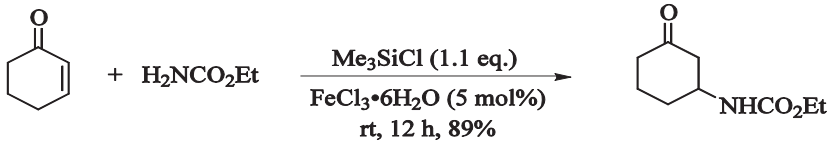
Enhances the deprotection of tBOC-protected amino acids.[4]

Enhances ethylene glycol ketalization reaction.[5]

Catalyzes the formation of chlorohydrin esters from diols.[6]

Reviewed as water scavenger in reactions of carbonyl compounds.[7]

Facilitates Michael additions.[8]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 170-182.
2. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
3. Snider, B. B.; Hawryluk, N. A. *Org. Synth.* **2000,** *2*, 635.
4. Chen, B. C. et al. *J. Org. Chem.* **1999,** *64*, 9294.
5. Chan, T. H. et al. *Synthesis* **1983,** 203.
6. Eras, J. et al. *J. Org. Chem.* **2002,** I, 8631.
7. Volochnuk, D. M. et al. *Synthesis* **2009**, 3719.
8. Xu, L. W. et al. *Chem. Commun.* **2003**, 2570.

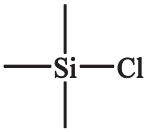
F&F: Vol. 1, p 1232; Vol. 2, p 435; Vol.3, p 310; Vol. 4, p 32, p 537; Vol.5, p 709; Vol. 6, p 25; Vol. 7, p 66; Vol. 8, p 107; Vol. 9, p 112; Vol. 10, p 96; Vol. 11, p 125; Vol. 12, p 126; Vol. 13, p 165; Vol. 14, p 175; Vol. 15, p 89; Vol. 16, p 85; Vol. 17, p 79; Vol. 19, p 374; Vol. 20, p 348, p 380, p 404; Vol.21, p 453.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[75-77-4] TSCA HMIS: 3-4-2-X 3kg-kg 15kg-kg 170kg-kg inquire

SIT8510.1

TRIMETHYLCHLOROSILANE, 99+%



C_3H_9ClSi 108.64 57.6° 0.8580 1.3885

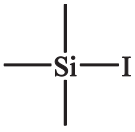
Redistilled "silylation" grade
Flashpoint: -27°C (-17°F)
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[75-77-4] TSCA HMIS: 3-4-2-X 3kg-kg 15kg-kg 170kg-kg inquire

SIT8564.0

TRIMETHYLIODOSILANE

TRIMETHYLSILYL IODIDE



C_3H_9ISi Stabilized with copper granules 200.1 106-7° 1.470 1.4742

ΔHform: -52.2 kcal/mole
Flashpoint: -2°C (28°F)
Dipole moment: 2.46 debye
Vapor pressure, 25°: 40 mm

Key reviews.[1,2]

Reagent for cleavage of ethers, esters, lactones.[3]

Used to dechlorinate aryl chlorides.[4]

Allylates aldehydes in the presence of allyl chloride and tin tetraiodide (SNT7946).[5]

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2. Olah, G. et al. In *Advances in Silicon Chemistry;* Larson, G., Ed.; JAI Press: Greenwich, Co, 1991; Vol. 1, p.1.
3. DePew, K. M. et al. *J. Org. Chem.* **1999,** *121*, 11953.
4. Sako, M. et al. *J. Org. Chem.* **2001,** *66*, 3610.
5. Masuyama, Y. et al. *Tetrahedron Lett.* **2005**, *46*, 2861.

F&F: Vol. 8, p 261;Vol. 9, p 19, p 55, p 113, p 151, p 216; Vol. 11, p 253, p 271, p 481; Vol. 12, p 259; Vol. 16, p 188; Vol. 18, p 383; Vol. 19, p 119, p 376; Vol. 20, p 407; Vol.21, p 458.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[16029-98-4] TSCA HMIS: 3-4-1-X 2.5kg-kg 25kg-kg 250kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)

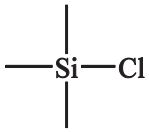

55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIT8510.0

TRIMETHYLCHLOROSILANE

TMCS



C_3H_9ClSi 108.64 57.6° (-57.7°) 0.8580 1.3885

Viscosity: 0.47 cSt

ΔHcomb: -714 kcal/mole

ΔHform: -84.5 kcal/mole

ΔHvap: 6.6 kcal/mole

Dipole moment: 2.09 debye

Surface tension: 17.8 mN/m

Specific heat: 0.42 cal/g/°

Coefficient of thermal expansion: 1.2×10^{-3}

Flashpoint: -27°C (-17°F)

TOXICITY: ihl mouse, LDLo: 500 mg/m^3/10M

Autoignition temperature: 395°C

Vapor pressure, 20°: 190 mm

Vapor pressure, 50°: 591 mm

Critical temperature: 224.6°

Critical pressure: 31.6 atm

Most economical and broadly used silylation reagent

Review of synthetic utility.[1]

Review on organosilane protecting groups.[2]

Enhances Claisen rearrangement.[3]

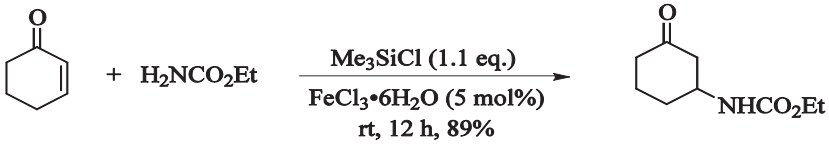
Enhances the deprotection of tBOC-protected amino acids.[4]

Enhances ethylene glycol ketalization reaction.[5]

Catalyzes the formation of chlorohydrin esters from diols.[6]

Reviewed as water scavenger in reactions of carbonyl compounds.[7]

Facilitates Michael additions.[8]



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5. Chan, T. H. et al. *Synthesis* **1983,** 203.
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HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

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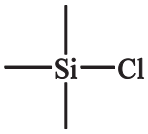
SIT8510.1

TRIMETHYLCHLOROSILANE, 99+%



C_3H_9ClSi 108.64 57.6° 0.8580 1.3885

Redistilled "silylation" grade

Flashpoint: -27°C (-17°F)

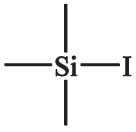
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[75-77-4] TSCA HMIS: 3-4-2-X 3kg-kg 15kg-kg 170kg-kg inquire

SIT8564.0

TRIMETHYLIODOSILANE

TRIMETHYLSILYL IODIDE



C_3H_9ISi Stabilized with copper granules 200.1 106-7° 1.470 1.4742

ΔHform: -52.2 kcal/mole

Dipole moment: 2.46 debye

Flashpoint: -2°C (28°F)

Vapor pressure, 25°: 40 mm

Key reviews.[1,2]

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Used to dechlorinate aryl chlorides.[4]

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4. Sako, M. et al. *J. Org. Chem.* **2001,** *66*, 3610.
5. Masuyama, Y. et al. *Tetrahedron Lett.* **2005**, *46*, 2861.

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HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[16029-98-4] TSCA HMIS: 3-4-1-X 2.5kg-kg 25kg-kg 250kg-kg inquire

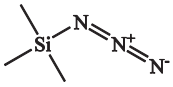

2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$ D	n_D^{20}

SIT8580.0



TRIMETHYLSILYL AZIDE, 96%

AZIDOTRIMETHYLSILANE

$C_3H_9N_3Si$ 115.21 95-6° (-95°) 0.876 1.4140

CAUTION: HIGHLY TOXIC

CAN FORM EXPLOSIVE PRODUCTS WITH MONOVALENT HEAVY METALS (Cu, Ag, Pb) AND VINYLSILANES

Soluble in hydrocarbons

Flashpoint: 30°C (86°F)

Autoignition temperature: 300˚C

Replaces hydrazoic acid

Review of synthetic utility.[1]

Used in the preparation of glycosyl azides.[2]

Reacts with terminal acetylenes and allyl carbonates to give 1-allyl-3-substituted 1,2,3-triazoles.[3]

Used to prepare the energetically unstable 2,5,8-triazido-s-heptazine.[4]

Converts alcohols directly to azides with complete inversion.[5]

Used in a one-pot, click-conversion of amines to triazoles.[6]

Converts allyl alcohols to allyl azides.[7]

Reaction with bridged bicyclic olefins leads to 1,2,3-triazoles by retro-Diels-Alder reaction.[8]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 26-31.
2. Soli, E. D.; DeShong, P. *J. Org. Chem.* **1999,** *64*, 9724.
3. Kamijo, S. et al. *J. Am. Chem. Soc.* **2003**, *125*, 7786.
4. Miller, D. R. et al. *J. Am. Chem. Soc.* **2004,** *126*, 5372.
5. Mukaiyama, T. et al. *Chem. Lett.* **2008**, *37*, 1072.
6. Savonnet, M. et al. *J. Am. Chem. Soc.* **2010**, *132*, 4418.
7. Ruepling, M. et al. *Org. Lett.* **2012,** *15,* 768.
8. Peterson, W. et al. *J. Organomet. Chem.* **1976**, *121*, 285.

F&F: Vol. 1, p 1236; Vol. 3, p 316; Vol. 5, p 354, p 719; Vol. 6, p 561, p 632; Vol. 9, p 21; Vol. 10, p 14, p 113; Vol. 11, p 32; Vol. 12, p 37; Vol. 13, p 34; Vol. 14, p 25; Vol. 15, p 16, p 342; Vol. 16, p 17; Vol. 17, p 23,p 157,p 378; Vol. 18, p 379, Vol. 19, p 371; Vol. 20, p 201,p 403; Vol. 21, p 151.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[4648-54-8] TSCA HMIS: 4-3-2-X 2kg-kg 15kg-kg


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

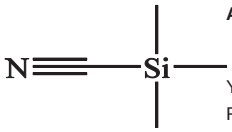
Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIT8585.0

TRIMETHYLSILYLCYANIDE

TRIMETHYLSILYLNITRILE

C_4H_9NSi 99.21 118-9° (11-12°) 0.744 1.3920



CAUTION: HIGHLY TOXIC

AIR TRANSPORT FORBIDDEN

Contains trimethylchlorosilane

Flashpoint: 1°C (34°F)

Vapor pressure, 37°: 37.3mm

Yields cyanohydrins by reaction w/ ketones in the presence of Lewis acid catalysts

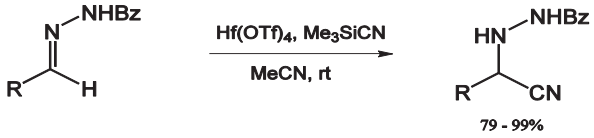
Reviews.[1,2]

Efficient conversion of carbonyls to cyanohydrins catalyzed by Cu(II) trifluoromethanesulfonate.[3]

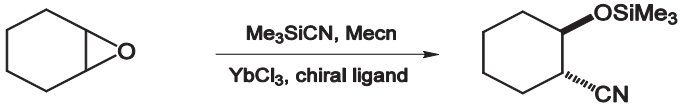
Treatment with methanol generates HCN solutions.[4]

Adds to aldehydes with high stereoselectivity.[5]

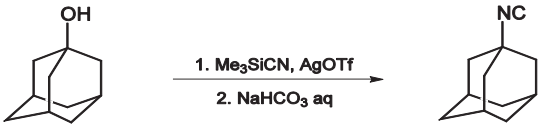
Adds HCN to benzylhydrazones.[6]



Opens epoxides with high enantioselectivity.[7]



Converts tertiary alcohols to isocyanides.[8]



Used to protect aldehydes in formation of aldehyde-functional Grignard reagents.[9]

Undergoes very rapid Al-MCM-41-catalyzed reactions with aldehydes and ketones.[10]

Converts alcohols to isocyanides in good yields.[11]

Oxidatively α-cyanates tertiary amines.[12]

Employed in 3-component, one-pot Strecker conversion of aldehydes to α-amino nitriles.[13,14]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 184-189.
2. Rasmussen, J. et al. In *Advances in Silicon Chemistry;* Larson, G., Ed.; JAI Press: Greenwich, Co, 1991; Vol. 1, p65.
3. Saravanan, D. et al. *Tetrahedron Lett.* **1998,** *39*, 3823.
4. Vachel, P.; Jacobsen, E. N. *Org. Lett.* **2000,** *2*, 867.
5. Belokon, Y. N.; North, M. *Org. Lett.* **2000,** *2*, 1617.
6. Manabe, K. et al. *J. Org. Chem.* **1999,** *64*, 8054.
7. Schaus, S. E.; Jacobsen, E. N. *Org. Lett.* **2000,** *2*, 1001.
8. Kitano, Y. et al. *Synthesis* **2001,** 437.
9. Liu, C.-Y. et al. *Org. Lett.* **2006**, *8*, 617.
10. Iwanami, K. et al. *J. Chem. Soc., Chem. Commun.* **2008**, 1002.
11. Okada, I.; Kitano, Y. *Synthesis,* **2011**, 3997.
12. Han. W.; Ofial, A. R. *J. Chem. Soc., Chem. Commun.* **2009**, 5024.
13. Karmekar, B.; Banerji, J. *Tetrahedron Lett.* **2010**, *51*, 2748.
14. Niknam, K. et al. *Tetrahedron Lett.* **2010**, *51*, 2959.

F&F: Vol. 4, p 542; Vol. 5, p 720; Vol. 6, p 632; Vol. 7, p 397; Vol. 8, p 133; Vol. 9, p 127; Vol. 10, p 1, p 112; Vol. 11, p 147; Vol. 12, p 148; Vol. 13, p 87; Vol. 14, p 107; Vol.15, p 102; Vol. 16, p 100, p 33, p 339; Vol. 18, p 381; Vol. 19, p 375; Vol. 20, p 405; Vol. 21, p 455.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[7677-24-9] TSCA HMIS: 4-4-1-X 1.5kg-kg 13kg-kg

* *includes liquid dispensing cylinder zCYL-L-2400* ** *requires zCYL-B-022 or zCYL-S-019*


2.5 liter (kg)

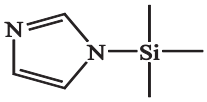

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}

SIT8590.0

N-(TRIMETHYLSILYL)IMIDAZOLE



$C_6H_{12}N_2Si$ 140.26 99° / 14 0.956 1.4756

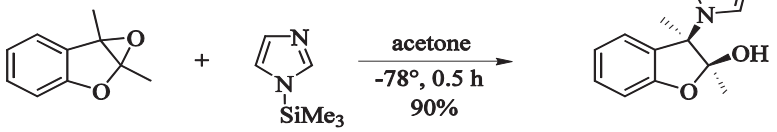
Dipole moment: 4.64 debye Flashpoint: 40°C (104°F)

pKb: 15.07

Trimethylsilylation reagent specific to hydroxyl groups

Review of synthetic utility.[1]

Shown to open an epoxide in a *syn* fashion.[2]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 640-645.
2. Adam, W. et al. *J. Am. Chem. Soc.* **1991**, *113*, 8005.

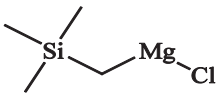
F&F: Vol. 2, p 412; Vol. 3, p 148; Vol. 7, p 399; Vol. 11, p 575.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[18156-74-6] TSCA HMIS: 2-3-1-X 2kg-kg 14kg-kg 175kg-kg inquire

SIT8594.1

TRIMETHYLSILYLMETHYLMAGNESIUM CHLORIDE, 3M in methyltetrahydrofuran



$C_4H_{11}ClMgSi$ 46-48 wgt % 146.98 0.912

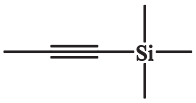
Flashpoint: -11°C (12°F)

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[13170-43-9] HMIS: 3-3-2-X 2kg-kg 16kg-kg 175kg-kg inquire

SIT8606.5

1-TRIMETHYLSILYLPROPYNE



$C_6H_{12}Si$ 112.25 99-100° (-69°) 0.758 1.4091

Flashpoint: -3°C (27°F)

Forms polymers with very high oxygen permeability.[1]

Polymerization catalyzed with $TaCl_5/(C_6H_5)_3Bi$.[2]

Converts aldehydes to 1,3-dienes in presence of $Cp_2Zr(H)Cl$.[3]

Synthetic reagent.[4]

Used in the preparation of alkynylxenon fluoride.[5]

Useful in silicon-mediated Sonogashira cross-coupling reactions.[6]

1. Masuda, T. et al. *J. Am. Chem. Soc.* **1983,** *105*, 7473.
2. Masuda, T. et al. *J. Polym. Sci., Part A: Polym. Chem.* **1987,** *25*, 1353.
3. Maeta, H. et al. *Tetrahedron Lett.* **1992,** *33*, 5969.
4. F&F: Vol. 2, p 239; Vol. 6, p 638.
5. Schmidt, H. et al. *Inorg. Chem.* **2004**, *43*, 1837.
6. Larson, G. L. "*Silicon-Based Cross-Coupling Reagents*" Gelest, Inc. 2011.

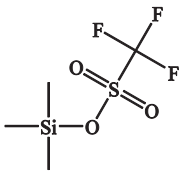
HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions

[6224-91-5] TSCA HMIS: 2-4-0-X 1.5kg-kg 13kg-kg 140kg-kg inquire

SIT8620.0

TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE

TRIMETHYLSILYLTRIFLATE



$C_4H_9F_3O_3SSi$ 222.25 140-1° 1.225 1.360

Vapor pressure, 26°: 14 mm Flashpoint: 40°C (104°F)

Autoignition temperature: 405°C

Review of synthetic utility.[1]

Review on organosilane protecting groups.[2]

Reacts with ketones to form silyl enol ethers; Review.[3]

Enhances the addition of terminal acetylenes to aldehydes.[4]

Used in the nickel-catalyzed direct phenylation of C-H bonds in heteroaromatic system such as benzoxazoles.[5]

1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 518-537.
2. Larson, G. L. "*Silicon-Based Blocking Agents*" Gelest, Inc. 2014.
3. Simchen, G. In *Advances in Silicon Chemistry;* Larson, G., Ed.; JAI Press: Greenwich, Co, 1991; Vol. 1, p189.
4. Downey, C. W. et al. *J. Org. Chem.* **2009**, *74*, 2904.
5. Hachilya, H. et al. *Angew. Chem., Int. Ed. Engl.* **2010**, *49*, 2202.

F&F: Vol. 6, p 639; Vol. 8, p 497; Vol. 10, p 438; Vol. 11, p 584; Vol. 12, p 543; Vol. 13, p 118, p 149, p 187, p 321, p 329; Vol. 14, p 119, p 202, p 259, p 321, p 333; Vol. 15, p 66, p 102, p 108, p 346; Vol. 16, p 49, p 112, p 138, p 278, p 363; Vol. 17, p 26, p 379; Vol. 18, p 23, p 57, p 383; Vol. 20, p 408; Vol. 21, p 460.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[27607-77-8] TSCA HMIS: 3-2-1-X 2.5kg-kg 20kg-kg

** requires zDR-S-019 or zCYL-S-019*

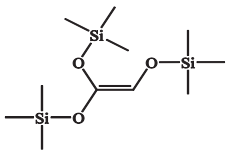

2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}

SIT8720.0



TRIS(TRIMETHYLSILOXY)ETHYLENE, 96%

$C_{11}H_{28}O_3Si_3$ 292.59 90° / 1 0.885 1.4204

Flashpoint: 58°C (136°F)

Converts acid chlorides to hydroxymethylketones.[1]

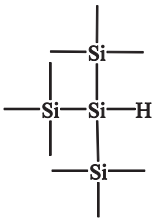
1. Wissner, A. *J. Org. Chem.* **1979,** *44*, 4617.

F&F: Vol. 8, p 523; Vol. 9, p 512.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[69097-20-7] HMIS: 2-2-1-X 2kg-kg 15kg-kg 160kg-kg inquire

SIT8724.0



TRIS(TRIMETHYLSILYL)SILANE

1,1,1,3,3,3-HEXAMETHYL-2-TRIMETHYLSILYLTRISILANE; TTMS

$C_9H_{28}Si_4$ 248.67 82-4° / 12 0.806 1.489

Flashpoint: 55°C (131°F)

Oxidizes slowly in contact with air at room temperature

Reviews.[1,2]

Efficient mediator in organic radical reactions.[3]

Initiates addition of alkyl iodides to activated olefins.[4]

Initiates and promotes the radical addition of perfluoroalkyl iodides to olefins in water.[5]

Hydrosilylates olefins in aqueous systems in presence of azo initiators.[6]

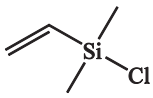
1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 747-754.
2. Chatgilialoglu, C. *Chem. Eur. J.* **2008**, *14*, 2310.
3. Chatgilialoglu, C. *Acc. Chem. Res.* **1992,** *25*, 188.
4. Kishimoto, Y.; Ikariya, T. *J. Org. Chem.* **2000,** *65*, 7656.
5. Barata-Vallejo, S.; Postigo, A. *J. Org. Chem.* **2010**, *75*, 6141.
6. Postigo, A. et al. *Organometallics* **2009**, *28*, 3282.

F&F: Vol. 15, p 358; Vol. 16, p 374; Vol. 17, p 395.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1873-77-4] HMIS: 2-2-1-X 2kg-kg 14kg-kg inquire

SIV9070.0



VINYLDIMETHYLCHLOROSILANE

C_4H_9ClSi 120.65 82-3° 0.884 1.4137 ^{25}

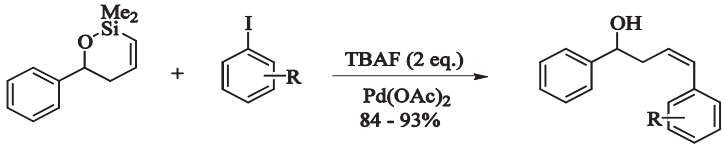
Flashpoint: -5°C (23°F)

Review of synthetic utility.[1]

Used in synthesis of highly substituted unsaturated alcohols.[2]

Reductively cross-couples with allyl alcohols to form butenols after oxidation.[3]

Used to silylate unsaturated alcohols, which can be RCM-cyclized to a vinylsilyl ether, which in turn can be subjected to a silicon-based cross-coupling.[4]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 157-161.
2. Denmark, S. E.; Lang, S. M. *Org. Lett.* **2001,** *3*, 1749.
3. Belardi J. K.; Micalizio, G. C. *J. Am. Chem. Soc.* **2008**, *130*, 16870.
4. Denmark, S. E.; Yang, S.-M. *Org. Lett.* **2003**, *3*, 1749.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1719-58-0] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 150kg-kg inquire


2.5 liter (kg)

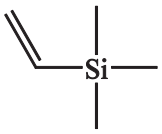

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SIV9250.0

VINYLTRIMETHYLSILANE



$C_5H_{12}Si$ 100.24 55° (-132°) 0.6903 1.3910

Viscosity, 20°: 0.5 cSt
ΔHcomb: 987.3 kcal/mole
ΔHfus: 7.7 kJ/mole
Copolymerization parameters- e,Q: 0.04, 0.029
Flashpoint: -20°C (-4°F)
TOXICITY: oral rat, LD50: >2,000 mg/kg
Autoignition temperature: 295°C

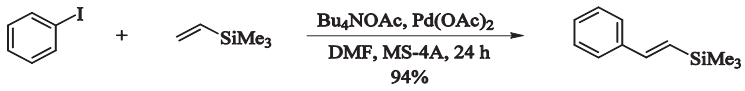
Forms polymers which can be fabricated into oxygen enrichment membranes

Review of synthetic utility.[1]

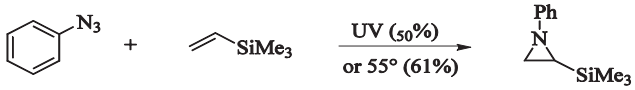
Polymerization catalyzed by alkyllithium compounds.[2,3,4]

Synthetic reactions of vinylsilanes reviewed.[5,6]

Undergoes Heck coupling to (E)-β-substituted vinyltrimethylsilanes, which can be cross-coupled further.[7]



Reacts w/ azides to form trimethylsilyl-substituted aziridines.[8]



1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 755-761.
2. Oku, J. et al. *Polymer J.* **1991,** *23*, 1377; *Macromolecules* **1992,** *25*, 2780.
3. Gan, Y. et al. *Macromolecules* **1996,** *29*, 8285.
4. Rickle, G. J. *Macromol. Sci.* **1987,** *A24*, 93.
5. Hudrlik, P. In *New Applications of Organometallic Reagents in Organic Synthesis;* Seyferth, D., Ed.; Elsevier: 1976.
6. F&F: Vol. 5, p 375; Vol. 6, p 637.
7. Jeffery, T. *Tetrahedron Lett.* **1999**, *40*, 1673.
8. Bassindale, A. R. et al. *J. Chem. Soc., Perkin Trans. 1* **2000**, 1173.

F&F: Vol. 9, p 498; Vol. 10, p 44; Vol. 11, p 41; Vol. 12, p 566.

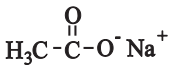
HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[754-05-2] TSCA HMIS: 2-4-0-X 1.5kg-kg 13kg-kg 140kg-kg inquire

SODIUM

CXSO010

SODIUM ACETATE



$C_2H_3NaO_2$ 82.03 (324° dec.) 1.45

Solubility, methanol: 210 g/l
TOXICITY: oral rat, LD50: 3,530 mg/kg
Autoignition temperature: 600°C
ΔHform: -169.4 kcal/mole

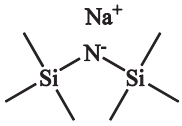
F&F: Vol. 1, p 1024; Vol. 5, p 591.

HYDROLYTIC SENSITIVITY: 0: forms stable aqueous solutions

[127-09-3] TSCA HMIS: 2-1-0-X 10kg-kg 100kg-kg

SIS6980.2

SODIUM BIS(TRIMETHYLSILYL)AMIDE, 2M in tetrahydrofuran



$C_6H_{18}NNaSi_2$ 183.37 0.90

Flashpoint: -14°C (7°F)

Review of synthetic utility.[1]

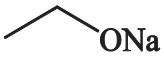
1. *Handbook of Reagents for Organic Synthesis, Reagents for Silicon-Mediated Organic Synthesis*, Fuchs, P. L. Ed., John Wiley and Sons, Ltd., 2011, p. 468-478.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[1070-89-9] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 170kg-kg inquire

AKS740

SODIUM ETHOXIDE. 95%



C_2H_5NaO 68.05 (260° dec.)

ΔHform: -98.9 kcal/mole
Solubility, ethanol, 20°: 250 g/l

Base for the generation of carbanions

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

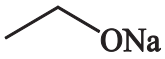
[141-52-6] TSCA HMIS: 3-3-2-X 2kg-kg 10kg-kg 100kg-kg inquire


2.5 liter (kg)


5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}$D	n_D^{20}



AKS741

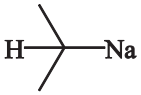
SODIUM ETHOXIDE, 21% in ethanol

C_2H_5NaO (ethanol is denatured w/ 0.5% toluene) 68.05 0.868 1.3850

Flashpoint: 15°C (59°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[141-52-6] TSCA HMIS: 3-4-1-X 2kg-kg 15kg-kg 180kg-kg inquire



AKS751

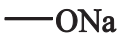
SODIUM ISOPROPOXIDE, 20% in tetrahydrofuran

C_3H_7NaO 82.08 0.90 1.409

Flashpoint: -14°C (7°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[683-60-3] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg 160kg-kg inquire



AKS760

SODIUM METHOXIDE, 95%

CH_3NaO 54.02 (>300° dec.)

Caution: MAY SPONTANEOUSLY IGNITE ON EXPOSURE TO AIR AT TEMPERATURES >70°C

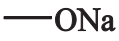
Solubility, methanol, 20°: 330 g/l

ΔHform: -87.9 kcal/mole

F&F: Vol. 1, p 1091; Vol. 2, p 385.

HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[124-41-4] TSCA HMIS: 3-4-3-X 2kg-kg 10kg-kg 100kg-kg inquire



AKS761

SODIUM METHOXIDE, 25% in methanol

CH_3NaO 54.02 0.945 1.3700

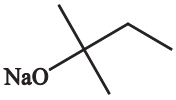
Viscosity, 25°: 20-25 cSt Flashpoint: 11°C (52°F)

Reagent for nucleophilic displacement, condensation catalyst, etc.[1]

1. F&F: Vol. 1, p 1091; Vol. 2, p 385; Vol. 3, p 259.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[124-41-4] TSCA HMIS: 3-4-2-X 2kg-kg 17kg-kg 190kg-kg inquire



AKS768.5

SODIUM 2-METHYL-2-BUTOXIDE, 35% in tetrahydrofuran

SODIUM t-AMYLATE

$C_5H_{11}NaO$ 110.13 0.91

Flashpoint: -19°C (-3°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[14593-46-5] TSCA HMIS: 3-4-1-X 2kg-kg 15kg-kg 160kg-kg inquire


2.5 liter (kg)

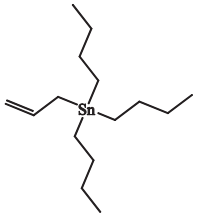

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SNA0500

ALLYLTRI-n-BUTYLTIN



$C_{15}H_{32}Sn$ 331.11 88-92° / 0.2 1.068 1.4846

Flashpoint: 103°C (217°F)

Reviewed.[1]

Allylates bromides and chloroethers.[2,3]

Radical initiation induces 1,2-addition of allyltins and alkyl iodides to electron deficient alkenes.[4]

Polymerization by Natta catalyst - Et_3Al-$TiCl_4$.[5]

Converts aldehydes to homoallylic alcohols and imines to homoallylic amines.[6]

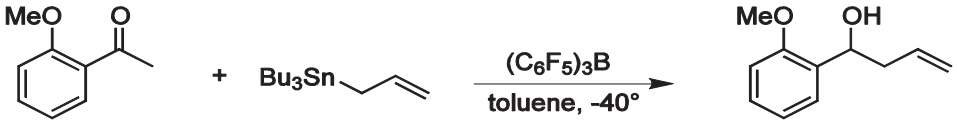
Converts combination of aldehyde and amine to homoallylic amines.[7]

Enantioselectively generates homoallylic amines in a 3-component reaction scheme.[8]

Adds enantioselectively to prochiral ketones to form homoallyl alcohols in good enantioselectively.[9]

Conjugatively allylates alkylidene Meldrum's acids.[10]

Generates homoallylic amines with aldehydes and amines.[11]



1. Castellino, S. in *Encyclopedia of Reagents for Organic Synthesis* **1995**, *Volume 1*, 125-128.
2. Corey, E. et al. *Tetrahedron Lett.* **1990**, *31*, 3715.
3. Keck, G. et al. *J. Am. Chem. Soc*. **1982**, *104*, 5829.
4. Mizuno, K. et al. F&F: Vol. 14, p 16; *J. Am. Chem. Soc.* **1988**, *110*, 1288.
5. Montecatini. Soc. *Chem. Abstr.* 53, 1837; Ital. Patent 589,299, 1959.
6. Shen, W. et al. *Tetrahedron Lett.* **2008**, *49*, 4047.
7. Kalita, P. K.; Phukan, P. *Tetrahedron Lett.* **2008**, *49*, 5495.
8. Li, X. et al. *Chem. Eur. J.* **2008** *14*, 4796.
9. Lu, J. et al. *Tetrahedron Lett.* **2005**, *46*, 7435.
10. Duma, A. N.; Fillion, E. *Org. Lett.* **2009**, *11*, 1919.
11. Narsaiah, A. et al. *Synthesis*, **2010**, 1609.

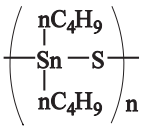
F&F: Vol. 9, p 8; Vol. 11, p 15; Vol. 12, p 21; Vol. 13, p. 10; Vol. 14, p. 14; Vol. 16, p. 7; Vol. 17, p 12.

HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[24850-33-7] HMIS: 2-2-1-X 2kg-kg 20kg-kg

SND3355

DI-n-BUTYLTIN SULFIDE, tech-95



$C_8H_{18}SSn$ 264.98 (90-8°) 1.42 1.579

Form: off-white solid; trimeric

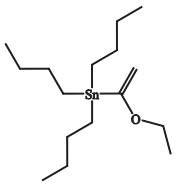
TOXICITY: oral rat, LD50: 145 mg/kg

Soluble: THF, hot toluene

[4253-22-9] TSCA HMIS: 3-1-1-X 2kg-kg 20kg-kg 200kg-kg inquire

SNE4620

1-ETHOXYVINYLTRI-n-BUTYLTIN

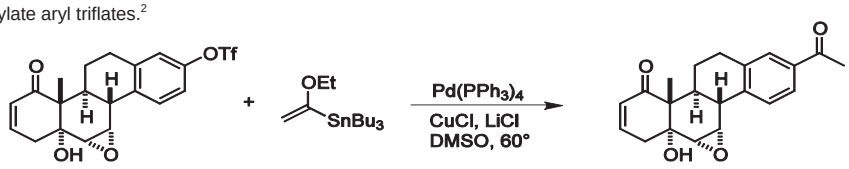


$C_{16}H_{34}OSn$ 361.14 85-6° / 1 1.069 1.4760

Flashpoint: 113°C (235°F)

Can be cross-coupled with aryl chlorides.[1]

Used to acylate aryl triflates.[2]



Undergoes Stille cross-coupling reactions as employed in the syntheses of three cladiellins.[3]

Cross-couples with vinyl sulfides.[4]

Can be cross-coupled with heteroaromatic chlorides.[5]

1. Soderquist, J. et al. *Tetrahedron Lett.* **1983**, *24*, 2361.
2. Stoltz, B. M. et al. *J. Am. Chem. Soc*. **2000**, *122*, 9044.
3. Clark, J. S. et al. *Angew. Chem., Int. Ed. Engl.* **2010**, *49*, 9867.
4. Schleiss, J.; Rollin, P.; Tatibouet, *P. Angew. Chem., Int. Ed. Engl.* **2010**, *49*, 577.
5. Hong. L. et al. *Bioorg. Med. Chem. Lett.* **2010**, *20*, 679.

[97674-02-7] HMIS: 3-2-1-X 2kg-kg 20kg-kg inquire


2.5 liter (kg)

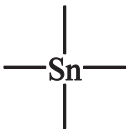

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

SNT7560

TETRAMETHYLTIN



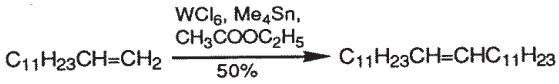
$C_4H_{12}Sn$ 178.83 74-5° (-54°) 1.291 1.4410

Vapor pressure, -21°: 10 mm
Vapor pressure, 20°: 90 mm
Sn-Me bond dissociation energy: 227 kJ/mole
Ea, pyrolysis: 41.1 kcal/mole

Flashpoint: -12°C (10°F)
TOXICITY: oral rat, LD50: 195-331 mg/kg
TOXICITY: ihl mus, LCLo: 2,550 mg/m^3
ΔHcomb: 903.5 kcal/mole
ΔHform, gas, 27°: -13.6 kcal/mole
ΔHvap: 6.8 kcal/mole

Reviewed.[1]

In combination with WCl_6 catalyzes olefin metathesis for synthesis of terpenoids from 1-methylcyclobutene.[2]



Allows synthesis of even numbered alkanes.[3]

Converts acid chlorides to methyl ketones with benzylchlorobis(triphenyl phosphine)palladium.[4,5]

Forms aryl methyl ketones from aryl halides and CO in the presence of dicarbonylbis(triphenylphosphine)nickel.[6]

Safety and handling considerations.[7]

1. Scott, W. J.; Jones, J. H.; Moretto, A. F. in *Encyclopedia of Reagents for Organic Synthesis* **1995**, *Volume 8*, 4823-4825.
2. van Dam, P. et al. *J. Chem. Soc., Chem. Commun*. **1972**, 1221.
3. Gibson, T. et al. *J. Org. Chem.* **1981**, *46*, 1821.
4. Milstein, D. et al. *J. Org. Chem.* **1979**, *44*, 1613.
5. Labadie, J. et al. *J. Am. Chem. Soc.* **1983**, *105*, 6129.
6. Tanaka, M. *Synthesis* **1981**, 47.
7. Kalb, P. et al. Report BNL-52123, **1987** Order NTIS #DE89005936.

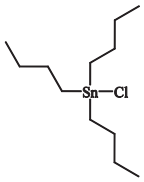
HYDROLYTIC SENSITIVITY: 1: no significant reaction with aqueous systems

[594-27-4] TSCA HMIS: 3-4-0-X 1.5kg-kg 20kg-kg

** includes zCYL-L-2400 cylinder* ** requires zCYL-B-022 or zCYL-S-019

SNT8085

TRI-n-BUTYLCHLOROTIN



$C_{12}H_{27}ClSn$ 325.49 171-3° / 25 (-18°) 1.186 1.4905

Viscosity: 4 cSt
Dipole moment: 3.31 debye

Flashpoint: 120°C (248°F)
TOXICITY: oral mus, LD50: 117 mg/kg

Yields cis-alkenes on hydrolysis of reaction products with trialkylalkynylborates.[1]

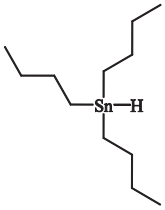
1. Hooz, J. et al. *Tetrahedron Lett.* **1976**, 805.

[1461-22-9] TSCA HMIS: 3-1-1-X 4kg-kg 20kg-kg 220kg-kg inquire

SNT8130

TRI-n-BUTYLTIN HYDRIDE

TRIBUTYLSTANNANE



$C_{12}H_{28}Sn$ Stabilized with 50 ppm BHT 291.05 78-80° / 0.2 1.082 1.4731

Viscosity, 20°: 1.5 cSt
Vapor pressure, 20°: 0.02 mm

Flashpoint: 40°C (104°F)
Decomposes: >250°
Storage stability, 5°: ~6 months
Storage stability, 25°: ~6 weeks
Viscosity, 20°: 1.5 cSt

Undergoes hydrostannation reactions; selective reducing agent

Reviewed.[1]

Reduces organic halides.[2]

Reduces acid chlorides to aldehydes.[3]

Reduces enol triflates to olefins.[4]

Effects partial reductions of chlorosilanes.[5]

Rate constant for aryl radicals: 7.8 x10^8 $M^{-1}s^{-1}$.[6]

Reductions reviewed.[7]

Reacts with $HfCl_4$ to provide hafnium hydride species, which reduces aldehydes and ketones.[8]

1. RajanBabu, T. V. in *Encyclopedia of Reagents for Organic Synthesis* **1995**, *Volume 8*, 5016-5023.
2. Van Der Kerk, G. F&F: Vol. 1, p 1192; *J. Appl. Chem.* **1937**, 7, 366.
3. Kuivala, H. *J. Org. Chem.* **1961**, *25*, 284; *J. Am. Chem. Soc*. **1966**, *88*, 571.
4. Scott, W. et al. *J. Am. Chem. Soc.* Soc. **1986**, *108*, 3033.
5. Paetzold, U. et al. *J. Organomet. Chem.* **1996**, *508*, 147.
6. Garden, S. et al. *J. Org. Chem*. **1996**, *61*, 805.
7. Neumann, W. *Synthesis* **1987**, 665.
8. Shibata, I. et al. *Synlett* **2009**, 1495.

F&F: Vol. 1, p. 1192; Vol. 2, p. 424; Vol. 3, p. 294; Vol. 4, p. 518; Vol. 5, p. 685; Vol. 6, p. 604; Vol. 7, p. 497, Vol. 9, p. 476; Vol. 10, p. 411; Vol. 11, p. 545; Vol. 12, p. 516; Vol 13, p 316; Vol. 14, p. 312; Vl. 15, p. 325; Vol. 16, p. 343; Vol. 19, pp. 352-359; Vol. 21, p. 333.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[688-73-3] TSCA HMIS: 3-2-1-X store <5°C 3kg-kg 20kg-kg 200kg-kg inquire


2.5 liter (kg)

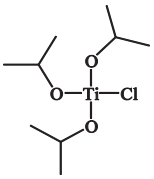

5 gallon/ 19L cyl. (kg)


55 gallon (kg)

Name	MW	bp °C/mm (mp °C)	$_4^{20}D$	n_D^{20}

AKT851.1

TITANIUM CHLORIDE TRIISOPROPOXIDE, 2M in hexane



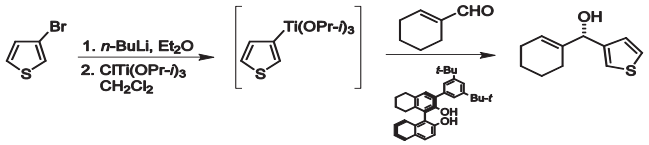
$C_9H_{21}ClO_3Ti$ (58 wgt%) 260.62 0.898

Flashpoint: -23°C (-9°F)

Reagent for conversion of carbanions and enolates to titanates with stereoselectivity.[1,2]

Provides benzyltriisopropoxytitanium compounds suitable for cross-linking to form diaryl- or aryl-heteroarylmethanes.[3]

Employed in the enantioselective arylation of aldehydes.[4]



1. Seigel, C.; Thornton, E. R. *Tetrahedron Lett*. **1986**, *27*, 457.
2. Nerz-Stonies, M.; Thornton, E. R. *Tetrahedron Lett*. **1986**, *27*, 897.
3. Chang, S-T. et al. *Tetrahedron,* **2012**, *68*, 3956.
4. Uenishi, A. et al. *Chem. Eur. J.* **2013**, *19*, 4896.

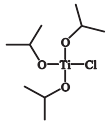
F&F: Vol. 11, p 375; Vol. 14, p 87.

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[20717-86-6] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg

AKT851.3

TITANIUM CHLORIDE TRIISOPROPOXIDE, 2M in heptane



$C_9H_{21}ClO_3Ti$ 260.62

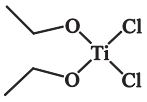
Flashpoint: -4°C (25°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[20717-86-6] TSCA HMIS: 3-4-1-X 2kg-kg 16kg-kg

AKT854.1

TITANIUM DICHLORIDE DIETHOXIDE, 1.5M in ethanol



$C_4H_{10}Cl_2O_2Ti$ 30-32 wgt% 208.91 0.95

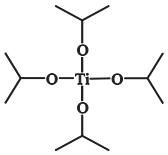
Flashpoint: 20°C (68°F)

HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[3582-00-1] TSCA-L HMIS: 3-4-1-X 2kg-kg 16kg-kg

AKT872

TITANIUM ISOPROPOXIDE



$C_{12}H_{28}O_4Ti$ Metal content: 16.6-16.9% Ti 284.25 58° / 1 (15-19°) 0.937 1.4654

Flashpoint: 25°C (77°F)

Soluble: heptane, isopropanol
Viscosity: 2 cSt
Vapor pressure, 50°: 0.9 mm
Vapor pressure, 100°: 19 mm

TOXICITY: ihl rat, 4 hour LD50: 7.78 mg/l
ΔHform: -377 kcal/mole
ΔHvap: 14.7 kcal/mole
Molecular complexity: 1.4

Catalyst for rearrangement[1] and cleavage[2] of epoxy alcohols.

Catalyst for cyclization of ω-amino acids to lactams.[3]

In combination with lead alkyls yields PZT films by MOCVD.[4]

Review of reactions in combination with Grignard reagents and various organic substrates.[5]

In combination with triethylamine and trimethylchlorosilane extends aldehydes to two carbons to enals.[6]

1. Morgans, D. et al. *J. Am. Chem. Soc.* **1981**, *103*, 462.
2. Caron, M. et al. *J. Org. Chem*. **1985**, *50*, 1557.
3. Mader, M. et al. *Tetrahedron Lett.* **1988**, *29*, 3049.
4. Kwak, B. S. et al. *Appl. Phys. Lett.* **1988**, *53*, 1702.
5. Wolan, A.; Six, Y. *Tetrahedron* **2010**, *66*, 15.
6. Kagana, N. et al. *Tetrahedron Lett.* **2010**, *51*, 482.

F&F: Vol. 6, p. 11; Vol. 10, p. 404; Vol. 11, p. 3724 Vol. 12, p. 19, 504; Vol. 13, p. 13; Vol. 14, p. 247, 311; Vol. 16, p. 339; Vol. 17, p. 347.

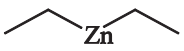
HYDROLYTIC SENSITIVITY: 7: reacts slowly with moisture/water

[546-68-9] TSCA HMIS: 2-3-1-X 2kg-kg 17kg-kg 190kg-kg inquire

ZINC

OMZN018

DIETHYLZINC, 1M in heptane



$C_4H_{10}Zn$ 16-17 wgt% 123.49 124° 0.740

Flashpoint: -4°C (25°F)

Review of carbozincation.[1]

Review of asymmetric addition of diorgaozinc reagents to aldehydes and prochiral ketones.[2]

Review of conjugate addition of organozinc reagents to a,b-unsaturated carbonyls.[3]

1. Murakami, K.; Yorimitsu, H. *Beilstein J. Org. Chem*. **2013**, *9*, 278.
2. Binder, C. M.; Singaram, B. *Org. Prep. Proc. Int.* **2011**, *43*, 139.
3. Lopez, F.; Feringa, B. L. in *Asymmetric Synthesis*, Christmann, M.; Brase, S. Eds. Wiley and Sons.

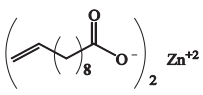
HYDROLYTIC SENSITIVITY: 8: reacts rapidly with moisture, water, protic solvents

[557-20-0] TSCA HMIS: 3-4-2-X 500g 13kg-kg

** includes cylinder zCYL-L-0900* *** requires zCYL-B-022 or zCYL-S-019*

CXZN085

ZINC UNDECYLENATE



$C_{22}H_{38}O_4Zn$ 431.92 (116-9°) 1.1

Antiseptic.[1]

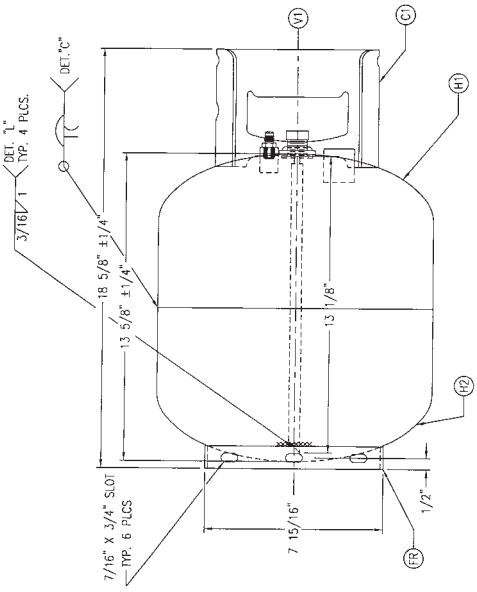
TOXICITY: orl rat, LD50: >2,000 mg/kg

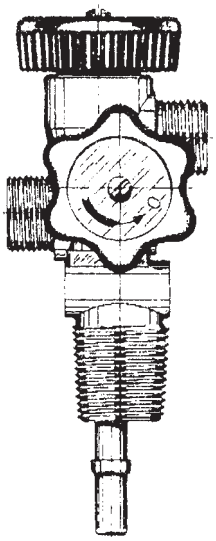
1. *Arch. Biochem*. **1945**, *7(3)*, 415.

HYDROLYTIC SENSITIVITY: 4: no reaction with water under neutral conditions

[557-08-4] TSCA HMIS: 2-1-0-X 5kg-kg 25kg-kg

Bulk Cylinders

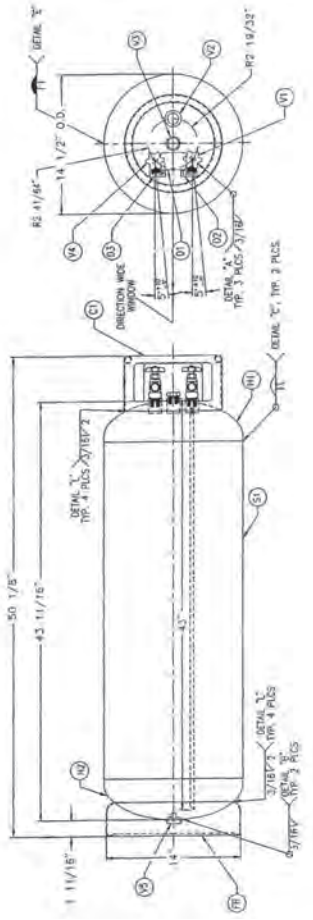




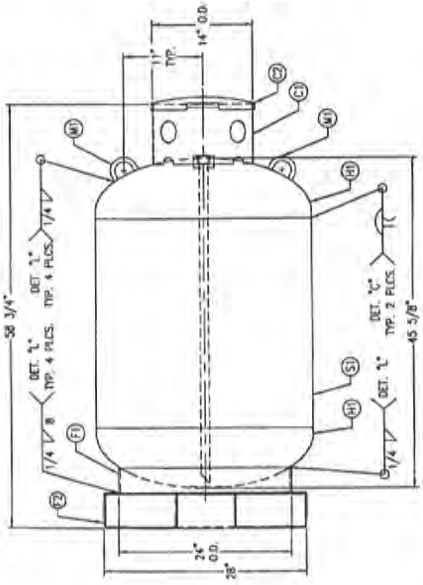
These carbon steel cylinders are for storing and dispensing bulk quantities of hazardous or air sensitive liquids and compressible gases. The cylinders meet the listed DOT specifications and pressure ratings. All cylinders are fitted for both liquid and gas dispensing. zCYL-B-022 is equipped with a dual port brass valve. zCYL-B-100 has two brass valves with CGA 660 connections. zCYL-B-225 & zCYL-B-450 have 1"NPT stainless ball valve (liquid) and a ¾" NPT stainless ball valve (vapor).

Product Code	Capacity	Nominal Tare	Pressure Rating	each
zCYL-B-022	21.5 liters	14.7 kg	4BA400 - 400 psi	$240.00
zCYL-B-100*	100 liters	33.7 kg	4BW260 - 260 psi	$880.00
zCYL-B-225	225 liters	96.2 kg	4BW240 - 240 psi	$1390.00
zCYL-B-450	450 liters	150.6 kg	4BW240 - 240 psi	$1800.00

*Heavy duty version suitable for pyrophoric material available, please inquire



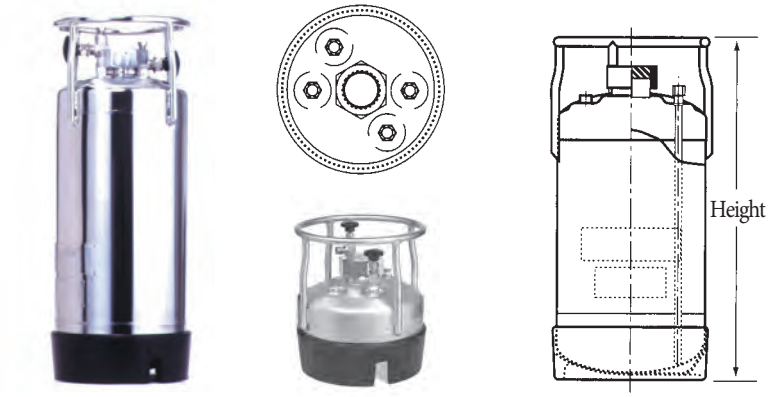
zCYL-B-100



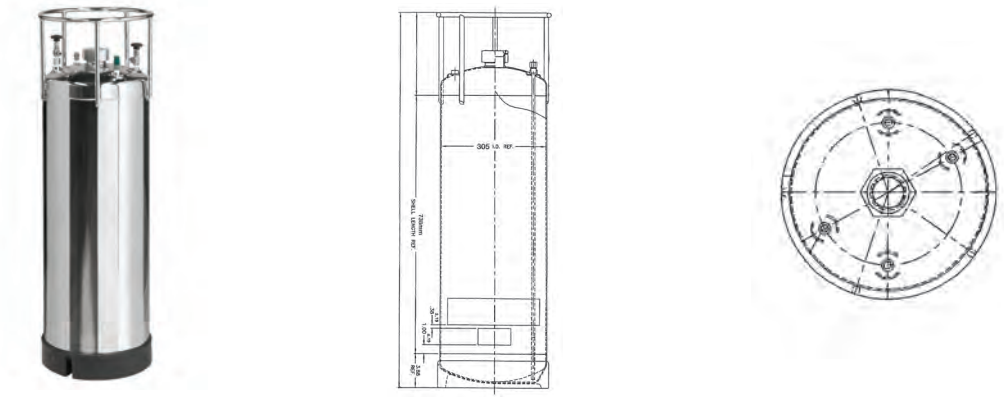
zCYL-B-450

Stainless Steel Bulk Cylinders

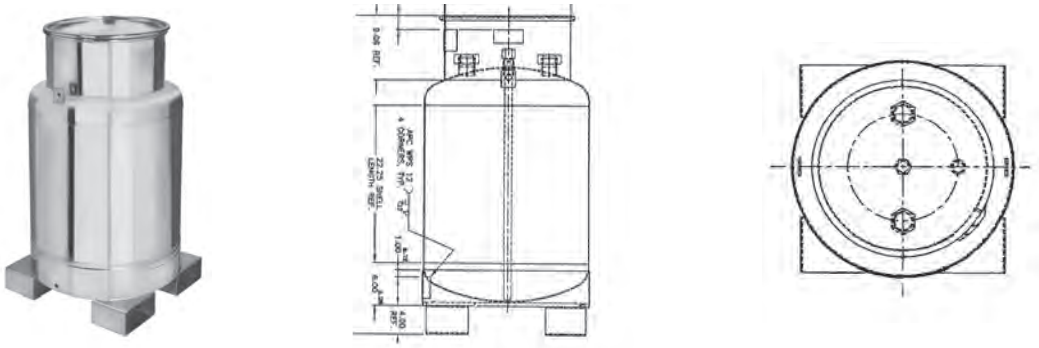
Electropolished 316L stainless steel cylinders for storing and dispensing bulk quantities of corrosive or high purity liquids and compressible gases. Head configuration includes four ¼″ NPT pipe fittings and 2″ access port. The price includes two ¼″ stainless needle valves equipped ¼″ Swagelok fittings.



Product Code	Capacity	Pressure Rating	Nominal Tare	DOT Specifications	Diameter	Height	each
zCYL-S-004	3.8 liters	185 psi	4.5 kg	UNIAI/X1.8/1390	229mm	273mm	$1120.00
zCYL-S-019	19 liters	185 psi	9.6 kg	UNIAI/X1.2/1390	229mm	616mm	$1150.00



Product Code	Capacity	Pressure Rating	Nominal Tare	DOT Specifications	Diameter	Height	each
zCYL-S-060	60 liters	185 psi	24.8 kg	UNIAI/X1.2/1480	305mm	1070mm	$2025.00



Product Code	Capacity	Pressure Rating	Nominal Tare	DOT Specifications	Diameter	Height	each
zCYL-S-209	209 liters	72 psi	70.8 kg	UNIAI/X1.8/640	610mm	1141mm	$5520.00

Low Pressure Disposable Cylinders

Liquid Dispensing Cylinders
These cylinders are fabricated from carbon steel under the specifications listed above, but are fitted with a gas inlet and liquid eduction tube. The brass valves have 1/4" NPT outlets. Empty cylinders are shipped unassembled.

Product Code	Capacity	Nominal Tare	each
zCYL-L-0280	280ml	0.69 kg	$112.00
zCYL-L-0900	900ml	1.21 kg	$116.00
zCYL-L-2400	2400ml	1.96 kg	$170.00

Stainless Steel Pails and Drums

Stainless steel pails and drums provide the the most cost-effective way to safely store and transport corrosive liquids. The closed-head pails have ¾″ and 2″ threaded bungs. They are manufactured to DOT specification UN1A1/X1.8/270.

19L (5 gallon)

208L (55 gallon)

Product Code	Capacity	Gauge	Nominal Tare	Each
zDR-S-019	19 liters	19	4.37 kg	$340.00
zDR-S-208	208 liters	18	21.7 kg	$610.00

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