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Protecting Agents

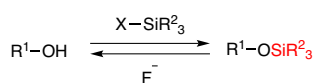
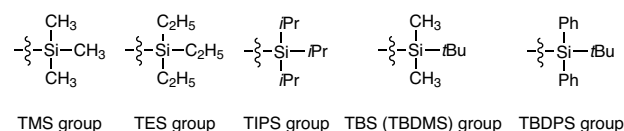
Protecting groups are of vital importance in organic synthesis. In many cases, reaction conditions will effect multiple functionalities, which necessitate the blocking of several functional groups to afford the correct synthetic transformation. However, protecting group attachment and removal requires their own conditions as well as individual chemical properties, and appropriate selection of the correct protecting agents is vitally important for synthetic strategy. The most useful protecting agents generally need several key properties:

- The protecting agents must selectively react with the desired functional group requiring protection.
- The protecting groups must be introduced in high yields without any side reactions.
- The protected functional groups should be stable under various reaction conditions.
- The protecting groups must be chemoselectively deprotected under specific conditions without deprotection of other types of protecting groups.

Particularly in total synthesis and for structurally complicated compounds, designing the synthetic strategies frequently requires careful selection of protecting groups. Over time, a large array of protection groups have become available due in part to the highly specialized requirements needed in complex synthesis. Many of these reagents and protection groups include specialized conditions for attachment and removal that have high specificity for a given functional and protection group. This brochure introduces a variety of protecting agents, which are sorted based on the methods used for their deprotection.

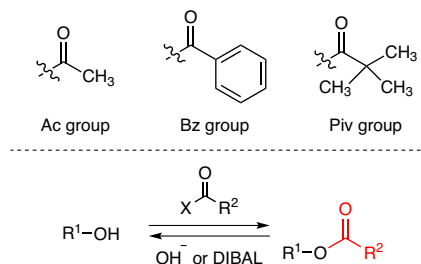
● Silylation Reagents

Silyl groups are one of the most commonly used protecting groups to block hydroxy functionalities, as well as for the protection of carboxyl groups and amino groups. Trimethylsilyl (TMS) and triethylsilyl (TES) are commonly used as general or short-term protecting groups, while triisopropylsilyl (TIPS), *tert*-butyldimethylsilyl (TBS or TBDMS) and *tert*-butyldiphenylsilyl (TBDPS) groups are used for introducing bulky substituents that are more robust. Silyl protecting groups are often readily deprotected under acidic conditions, or by fluoride ions.



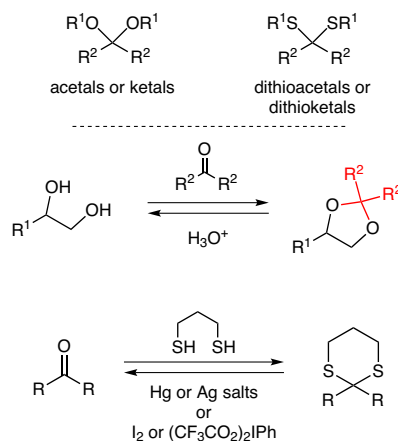
● Acylation Reagents

Acyl protecting groups are usually used for the protection of hydroxy groups and amino groups. Acetyl (Ac), benzoyl (Bz), and pivaloyl (Piv) groups are commonly chosen. Pivaloyl groups are often selected when non-sterically hindered hydroxyl groups need to be selectively protected due to the Piv groups large size. Generally, acyl protecting groups are stable under acidic and oxidative conditions. Acyl protecting groups are usually deprotected under basic or reductive conditions (DIBAL, LAH, etc.).



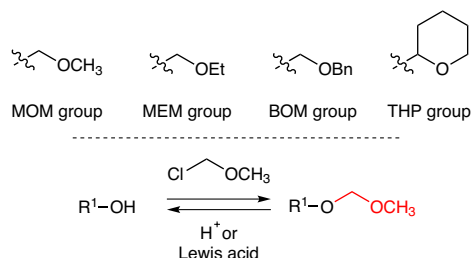
● Acetalization Reagents, Thioacetalization Reagents

Acetals and thioacetals are most often used in the protection of carbonyl groups, particularly that of aldehydes and ketones. The acetals and ketals are usually introduced under acidic conditions and take advantage of the equilibrium these exist under to install them. Acetals are stable under basic conditions and reductive conditions, and are additionally inert towards nucleophiles and organometallic reagents. Deprotection is usually carried out via hydrolysis under aqueous acidic conditions. Thioacetals have a wider synthetic resistance and are usually stable under both acidic and basic aqueous conditions. The deprotection of thioacetals usually requires the addition of mercury salts or hypervalent iodine compounds.



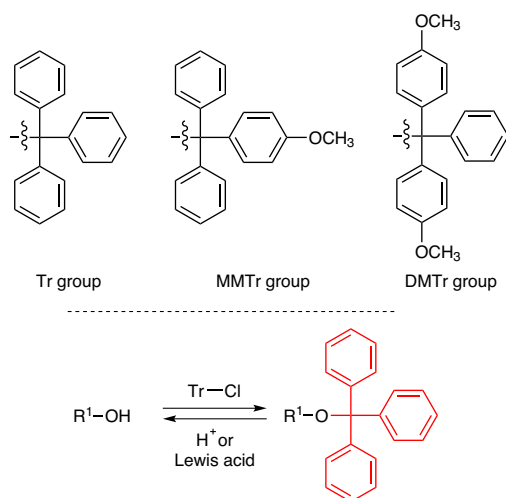
Alkoxy methylation Reagents

Alkoxy methyl groups such as methoxymethyl (MOM) group are generally used for the protection of hydroxy groups. They are stable under basic and reducing conditions due to formally being acetal functionality. Alkoxy methyl groups are usually deprotected by acid catalyzed hydrolysis.



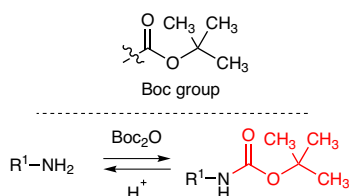
Tritylation (Tr) Reagents

Trityl (Tr) groups are mainly used for the protection of hydroxy groups. They can selectively protect less sterically-hindered substrates due to their large size. They are relatively stable against bases, oxidizing agents, reducing agents and nucleophiles, and the deprotection is carried out under acidic hydrolysis conditions.



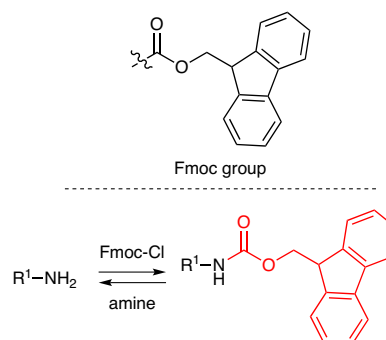
tert-Butoxycarbonylation (Boc) Reagents

tert-Butoxycarbonyl (Boc) group is one of the most commonly used protective groups for amino groups in peptide synthesis. It is also used for the protection of hydroxy groups. It is stable under basic hydrolysis conditions and catalytic reduction conditions, and is inert against various nucleophiles. It is commonly deprotected under acidic conditions with trifluoroacetic acid.



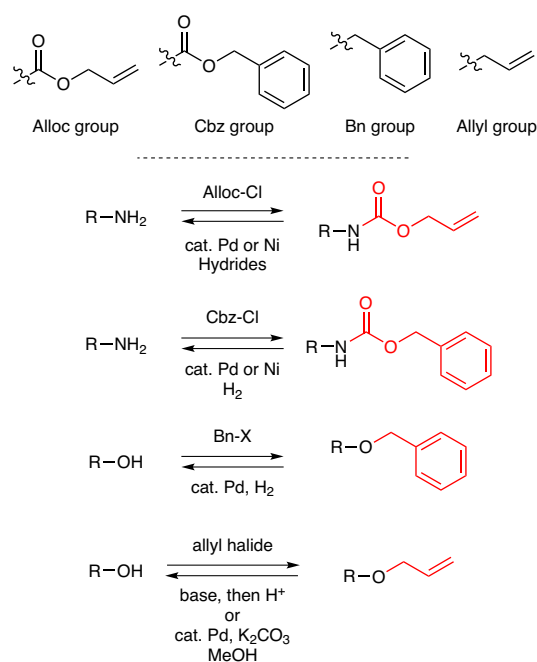
9-Fluorenylmethyloxycarbonylation (Fmoc) Reagents

9-Fluorenylmethyloxycarbonyl (Fmoc) group is one of the most commonly used protecting groups for amino groups in solid phase peptide synthesis. It is readily deprotected by secondary amines such as piperidine and is stable under acidic conditions. Of note, when a molecule contains both a Fmoc and Boc group, only the Boc group will be selectively removed under acidic conditions.



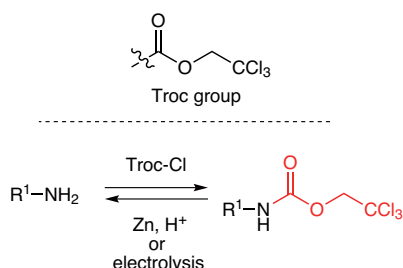
Allyloxycarbonylation (Alloc) Reagents, Benzyloxycarbonylation (Cbz) Reagents, Benzylolation (Bn) Reagents, and Allylation (All) Reagents

Allyloxycarbonyl (Alloc), benzyloxycarbonyl (Cbz), benzyl (Bn) and allyl (All) groups are commonly used for the protection of amino groups. These protecting groups are generally deprotected by palladium catalysts.



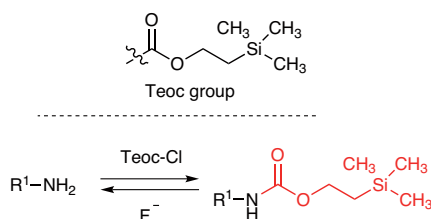
● 2,2,2-Trichloroethoxycarbonylation (Troc) Reagents

The 2,2,2-trichloroethoxycarbonyl (Troc) group is used as a protecting group for hydroxy and amino groups. The Troc group is generally deprotected by treatment with zinc powder or by electrolysis.



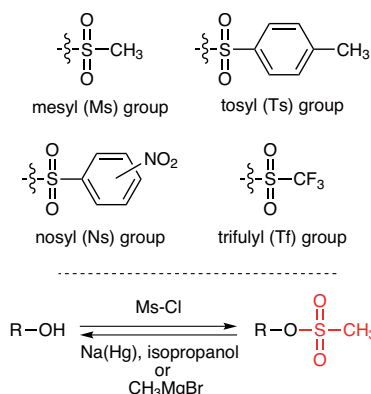
● 2-(Trimethylsilyl)ethoxycarbonylation (Teoc) Reagents

The 2-(trimethylsilyl)ethoxycarbonyl (Teoc) group is used as a protecting group for amines. Teoc groups can be deprotected with fluoride ion sources such as TBAF.



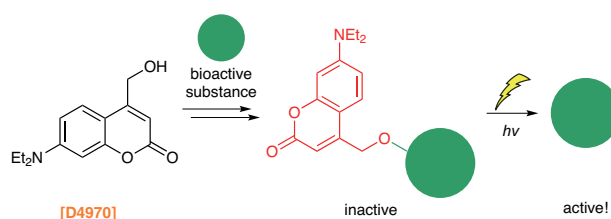
● Sulfonylation Reagents

Sulfonyl groups have application as both protecting groups for hydroxy and amino groups, and for the activation of hydroxy functionalities.



● Photolabile Protecting Reagents

Photolabile protecting groups like 7-(diethylamino)-4-(hydroxymethyl)-coumarin [D4970] can be introduced to afford "caged" compounds and is most often employed in protecting bioactive molecules. The "caging" of bioactive molecule with photolabile protecting groups in particular have proven to be a particularly useful tool in biochemical research. "Caged" compounds are inactivated with photolabile protecting groups and can be activated by UV or visible light irradiation. Research towards controlling the topical expression of biomolecule activity using caged compounds has been recently reported and continues to be heavily investigated. To date, several classes of caged biomolecule have been synthesized and reported, including: nucleotides, amino acids, biotin, and sugars.



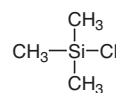
References

- Protective Groups in Organic Synthesis*, 5th ed., ed. by T. W. Greene, P. G. M. Wuts, John Wiley & Sons, Inc., New York, **2014**.
 A. Isidro-Llobet, M. Alvarez, F. Albericio, *Chem. Rev.* **2009**, 109, 2455.
 M. Schelhaas, H. Waldmann, *Angew. Chem. Int. Ed.* **1996**, 35, 2056.
 K. Jarowicki, P. Kocienski, *Contemp. Org. Synth.* **1997**, 4, 454.

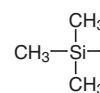
Silylation Reagents

Trimethylsilylation (TMS) Reagents

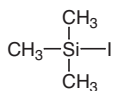
C0306 25mL 100mL 500mL

Chlorotrimethylsilane
CAS RN: 75-77-4

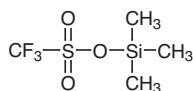
B1087 5mL 25mL 250mL

Bromotrimethylsilane
CAS RN: 2857-97-8

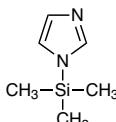
I0308 5g 25g

Trimethylsilyl iodide
CAS RN: 16029-98-4

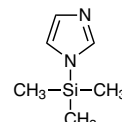
T0871 5g 25g 250g

TMSOTf
CAS RN: 27607-77-8

T0585 25g 100g

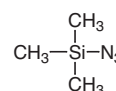
SIM
CAS RN: 18156-74-6

T0623 12mL

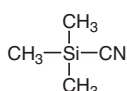


SIM (in Anhydrous Pyridine)

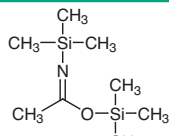
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Trimethylsilyl Azide
CAS RN: 4648-54-8

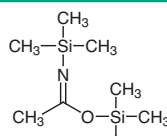
T0990 25mL 100mL 500mL

Trimethylsilyl Cyanide
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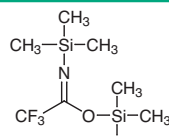
B0511 10mL 100mL

BSA
CAS RN: 10416-59-8

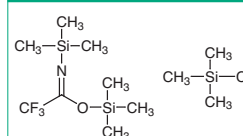
B0510 12mL

BSA (25% in Acetonitrile)
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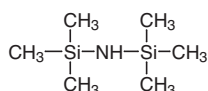
B0830 5mL 25mL 100mL

BSTFA
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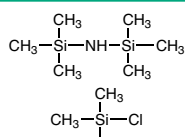
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BSTFA-TMCS (99:1)
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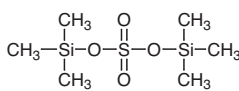
H0089 10mL 25mL 100mL 500mL

HMDS
CAS RN: 999-97-3

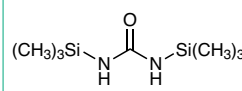
T0274 12mL

HMDS and TMCS
(in Anhydrous Pyridine)

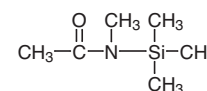
B1245 5g 25g

Bis(trimethylsilyl) Sulfate
CAS RN: 18306-29-1

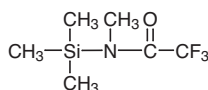
B1103 25g

BSU
CAS RN: 18297-63-7

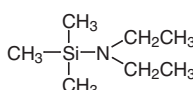
M0536 10g 25g

N-Methyl-N-TMS-acetamide
CAS RN: 7449-74-3

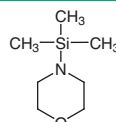
M0672 5mL 25mL

MSTFA
CAS RN: 24589-78-4

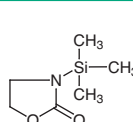
T0492 25mL

TMS-DEA
CAS RN: 996-50-9

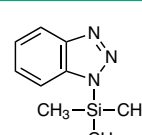
T1277 5mL 25mL

N-(Trimethylsilyl)morpholine
CAS RN: 13368-42-8

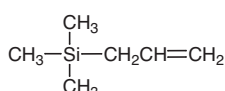
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3-Trimethylsilyl-2-oxazolidinone
CAS RN: 43112-38-5

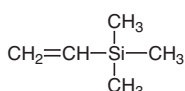
T1752 5g 25g

1-TMS-1H-benzotriazole
CAS RN: 43183-36-4

A0729 25mL 100mL 250mL

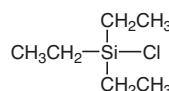
Allyltrimethylsilane
CAS RN: 762-72-1

V0067 25mL 100mL

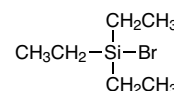
Vinyltrimethylsilane
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Triethylsilylation (TES) Reagents

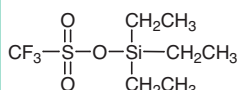
T0589 5g 25g 100g

Chlorotriethylsilane
CAS RN: 994-30-9

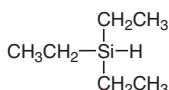
B5890 5g

Bromotriethylsilane
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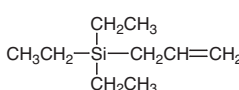
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Triethylsilyl Triflate
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T0662 25mL 250mL

Triethylsilane
CAS RN: 617-86-7

A2299 5g

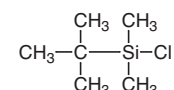
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CAS RN: 17898-21-4

tert-Butyldimethylsilylation (TBS) Reagents

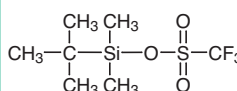


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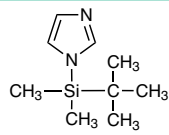
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TBSCl
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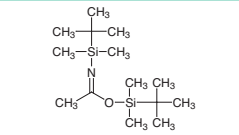
T1525 5g 25g

TBS Triflate
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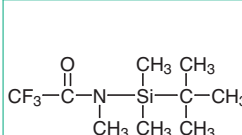
B1043 1g 5g

1-(tert-Butyldimethylsilyl)imidazole
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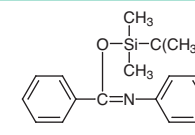
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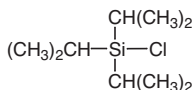
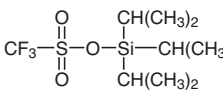
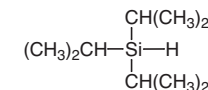
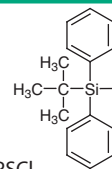
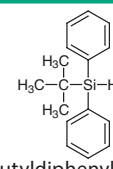
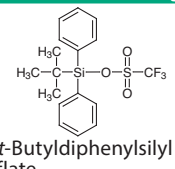
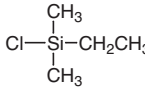
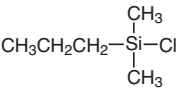
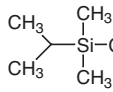
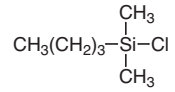
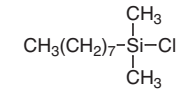
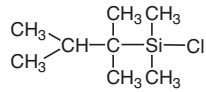
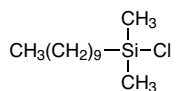
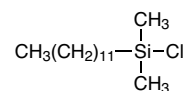
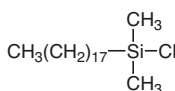
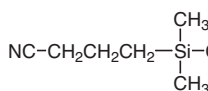
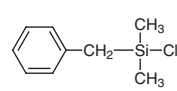
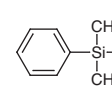
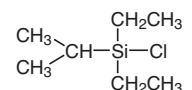
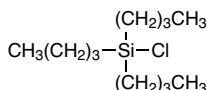
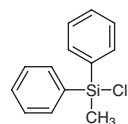
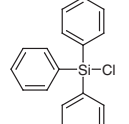
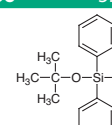
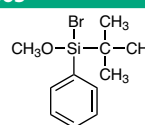
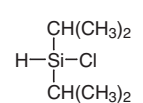
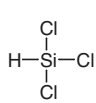
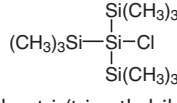
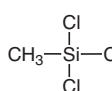
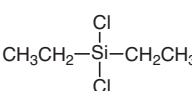
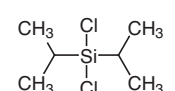
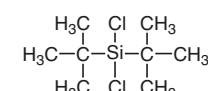
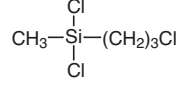
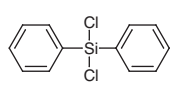
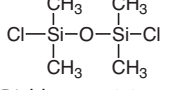
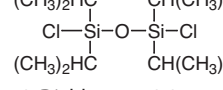
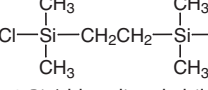
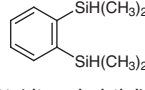
N,O-Bis(tert-butyldimethylsilyl)acetamide
CAS RN: 82112-21-8

B1150 1g 10g

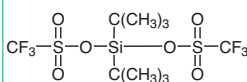
MTBSTFA
CAS RN: 77377-52-7

B2697 5g

TBS-BEZA
CAS RN: 404392-70-7

Triisopropylsilylation (TIPS) Reagents	T1078 5mL 25mL 250mL  TIPSCI CAS RN: 13154-24-0	T1588 5g 25g  Triisopropylsilyl Triflate CAS RN: 80522-42-5	T1533 5mL 25mL 100mL  Triisopropylsilane CAS RN: 6485-79-6	tert-Butyldiphenylsilylation (TBDPS) Reagents
B1223 5mL 25mL 100mL  TBDPSCI CAS RN: 58479-61-1	B3566 5g  tert-Butyldiphenylsilane CAS RN: 33729-92-9	B2898 1g 5g  tert-Butyldiphenylsilyl Triflate CAS RN: 92886-86-7	Other Silylation Reagents	D0135 5g 25g  Dimethylethylchlorosilane CAS RN: 6917-76-6
D1590 5mL 25mL  Chlorodimethylpropylsilane CAS RN: 17477-29-1	D1594 5mL 25mL  Dimethylisopropylchlorosilane CAS RN: 3634-56-8	B2010 25mL  Butylchlorodimethylsilane CAS RN: 1000-50-6	D1827 25mL 100mL  Dimethyl-n-octylchlorosilane CAS RN: 18162-84-0	T2116 5g 25g  Chloro(dimethyl)-hexylsilane CAS RN: 67373-56-2
C1468 25mL  Chloro(decyl)dimethylsilane CAS RN: 38051-57-9	C1469 25mL  Chloro(dodecyl)dimethylsilane CAS RN: 66604-31-7	D1560 25mL  Dimethyloctadecylchlorosilane CAS RN: 18643-08-8	C1207 5mL 25mL  (3-Cyanopropyl)dimethylchlorosilane CAS RN: 18156-15-5	B2334 5g  Benzylchlorodimethylsilane CAS RN: 1833-31-4
D1147 5mL 25mL  Chlorodimethylphenylsilane CAS RN: 768-33-2	D2262 1g 5g  Chlorodiethylisopropylsilane CAS RN: 107149-56-4	T3524 5g 25g  Tributylchlorosilane CAS RN: 995-45-9	D1390 25mL  Diphenylmethylchlorosilane CAS RN: 144-79-6	T0939 5g 25g  Triphenylchlorosilane CAS RN: 76-86-8
B1436 5mL 25mL  tert-Butoxydiphenylchlorosilane CAS RN: 17922-24-6	B1663 1g  tert-Butylmethoxyphenylsilyl Bromide CAS RN: 94124-39-7	C1492 5mL 25mL  Chlorodiisopropylsilane CAS RN: 2227-29-4	T0398 5g 25g 500g  Trichlorosilane CAS RN: 10025-78-2	C2411 5g  Chlorotris(trimethylsilyl)silane CAS RN: 5565-32-2
D0358 25mL 100mL 500mL  Dichlorodimethylsilane CAS RN: 75-78-5	D1976 5g 25g  Dichlorodiethylsilane CAS RN: 1719-53-5	D2603 5g 25g  Dichlorodiisopropylsilane CAS RN: 7751-38-4	D2469 5g  Di-tert-butylchlorosilane CAS RN: 18395-90-9	D1995 5mL 25mL  3-Chloropropyl-dichloromethylsilane CAS RN: 7787-93-1
D0362 25g 100g 500g  Dichlorodiphenylsilane CAS RN: 80-10-4	D2334 5g 25g  1,3-Dichloro-1,1,3,3-tetramethyldisiloxane CAS RN: 2401-73-2	D1608 5g 25g  1,3-Dichloro-1,1,3,3-tetraisopropylidisiloxane CAS RN: 69304-37-6	B1688 5g 25g  1,2-Bis(chlorodimethylsilyl)ethane CAS RN: 13528-93-3	B1699 1mL 5mL  1,2-Bis(dimethylsilyl)benzene CAS RN: 17985-72-7

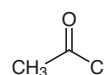
D3135 1g 5g

Di-tert-butylsilyl Ditriflate
CAS RN: 85272-31-7

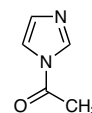
Acylation Reagents

Acetylation Reagents

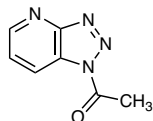
A0082 100g 500g

Acetyl Chloride
CAS RN: 75-36-5

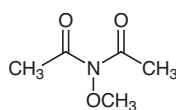
A0694 25g 100g

N-Acetylimidazole
CAS RN: 2466-76-4

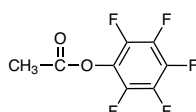
A1219 1g 5g

1-Acetyl-1H-1,2,3-triazolo[4,5-b]pyridine
CAS RN: 107866-54-6

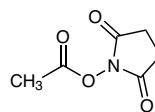
M1168 5g

N,N,N-Diacetylmethoxyamine
CAS RN: 128459-09-6

P2192 1g 5g

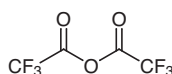
Pentafluorophenyl Acetate
CAS RN: 19220-93-0

S0878 5g 25g

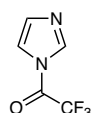
N-Succinimidyl Acetate
CAS RN: 14464-29-0

Trifluoroacetylation Reagents

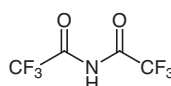
T0433 20mL 100mL 400mL

Trifluoroacetic Anhydride
CAS RN: 407-25-0

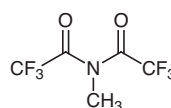
T0670 5g 25g

1-(Trifluoroacetyl)imidazole
CAS RN: 1546-79-8

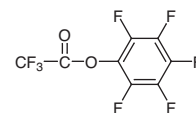
B0986 5g 25g

Bistrifluoroacetamide
CAS RN: 407-24-9

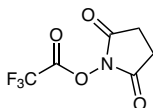
M0671 1mL 5mL

MBTFA
CAS RN: 685-27-8

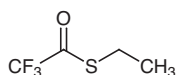
P1894 5g 25g

Pentafluorophenyl Trifluoroacetate
CAS RN: 14533-84-7

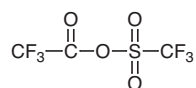
S0915 1g

N-Succinimidyl Trifluoroacetate
CAS RN: 5672-89-9

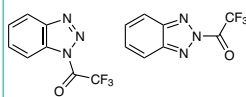
T0872 5mL

S-Ethyl Trifluoroethioacetate
CAS RN: 383-64-2

T1531 5g

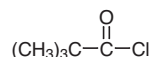
Trifluoroacetyl Trifluoromethanesulfonate
CAS RN: 68602-57-3

T3174 1g 5g

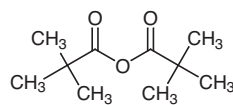
(Trifluoroacetyl)benzotriazole
CAS RN: 183266-61-7

Pivaloylation Reagents

P0677 25mL 500mL

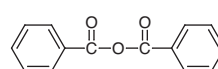
Pivaloyl Chloride
CAS RN: 3282-30-2

P1414 25mL 250mL

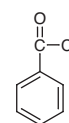
Pivalic Anhydride
CAS RN: 1538-75-6

Benzoylation Reagents

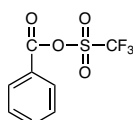
B0078 25g 100g 500g

Benzoic Anhydride
CAS RN: 93-97-0

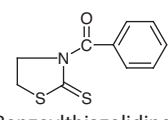
B0105 25mL 500mL

Benzoyl Chloride
CAS RN: 98-88-4

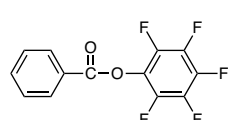
B3567 5g

Benzoyl Triflate
CAS RN: 36967-85-8

B3571 1g 5g

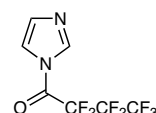
3-Benzoylthiazolidine-2-thione
CAS RN: 70326-37-3

P2229 1g 5g

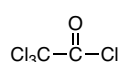
Pentafluorophenyl Benzoate
CAS RN: 1548-84-1

Other Acylation Reagents

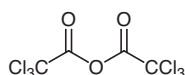
H0467 5g 25g

1-(Perfluorobutyl)-imidazole
CAS RN: 32477-35-3

T0373 25g 100g 500g

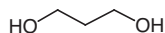
Trichloroacetyl Chloride
CAS RN: 76-02-8

T0792 25g

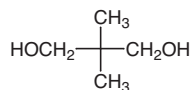
Trichloroacetic Anhydride
CAS RN: 4124-31-6

Acetalization Reagents Thioacetalization Reagents

P0486 25g 100g 500g

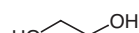
1,3-Propanediol
CAS RN: 504-63-2

D0791 25g 500g

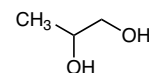
2,2-Dimethyl-
1,3-propanediol
CAS RN: 126-30-7

Acetalization Reagents (Diol Derivatives)

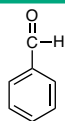
E0105 25g 500g

Ethylene Glycol
CAS RN: 107-21-1

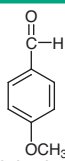
P0485 25g 100g 500g

1,2-Propanediol
CAS RN: 57-55-6

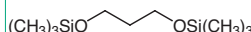
B2379 500g

Benzaldehyde
CAS RN: 100-52-7

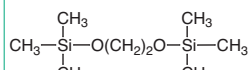
A0480 25mL 500mL

p-Anisaldehyde
CAS RN: 123-11-5

B3563 5g 25g

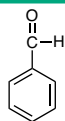
1,3-Bis(trimethylsilyloxy)-
propane
CAS RN: 17887-80-8

E0478 5g 25g

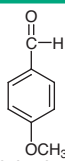
1,2-Bis(trimethylsilyloxy)-
ethane
CAS RN: 7381-30-8

Acetalization Reagents (Carbonyl Derivatives)

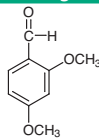
B2379 500g

Benzaldehyde
CAS RN: 100-52-7

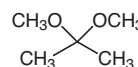
A0480 25mL 500mL

p-Anisaldehyde
CAS RN: 123-11-5

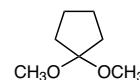
D0626 25g 100g 500g

2,4-Dimethoxy-
benzaldehyde
CAS RN: 613-45-6

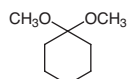
A0057 25mL 500mL

2,2-Dimethoxypropane
CAS RN: 77-76-9

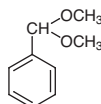
D1886 1mL 5mL

1,1-Dimethoxycyclopentane
CAS RN: 931-94-2

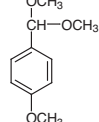
D1372 25mL 500mL

1,1-Dimethoxycyclohexane
CAS RN: 933-40-4

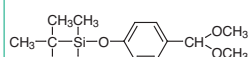
B1197 25mL 100mL 500mL

Benzaldehyde Dimethyl
Acetal
CAS RN: 1125-88-8

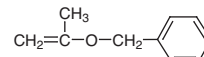
A1247 25mL 100mL 500mL

p-Anisaldehyde Dimethyl
Acetal
CAS RN: 2186-92-7

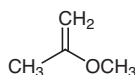
B3577 5g

tert-Butyl[4-(dimethoxymethyl)-
phenoxy]dimethylsilane
CAS RN: 118736-04-2

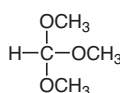
B1257 1mL 5mL

2-Benzyloxy-1-propene
CAS RN: 32783-20-3

I0303 25mL 100mL 500mL

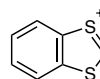
2-Methoxypropene
CAS RN: 116-11-0

O0068 25mL 500mL

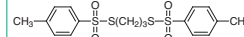
Trimethyl Orthoformate
CAS RN: 149-73-5

Thio- acetalization Reagents

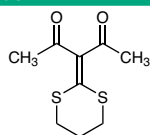
B1151 5g

1,3-Benzodithiolium
Tetrafluoroborate
CAS RN: 57842-27-0

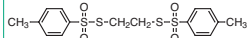
D2390 5g 25g

1,3-Di(p-tosylthio)propane
CAS RN: 3866-79-3

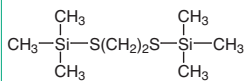
D4208 1g 5g

3-(1,3-Dithian-2-ylidene)-
2,4-pentanedione
CAS RN: 55727-23-6

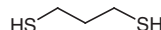
E0471 5g 25g

1,2-Di(p-tosylthio)ethane
CAS RN: 2225-23-2

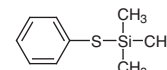
E0479 5g

1,2-Bis(trimethylsilylthio)-
ethane
CAS RN: 51048-29-4

P0763 25mL 100mL

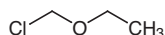
1,3-Propanedithiol
CAS RN: 109-80-8

P1378 5g 25g

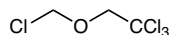
(Phenylthio)trimethylsilane
CAS RN: 4551-15-9

Alkoxymethylation Reagents

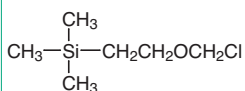
C0201 25g 100g 500g

Chloromethyl Ethyl Ether
CAS RN: 3188-13-4

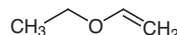
C2412 5g

Chloromethyl
2,2,2-Trichloroethyl Ether
CAS RN: 69573-75-7

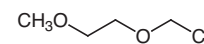
C1339 5mL 25mL

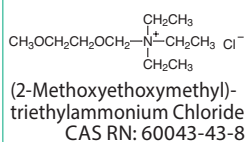
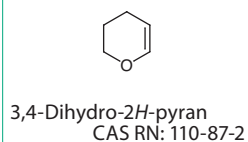
SEM-Chloride
CAS RN: 76513-69-4

E0193 25mL 100mL 500mL

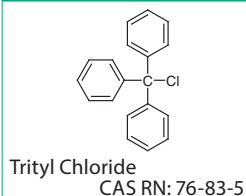
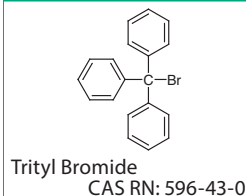
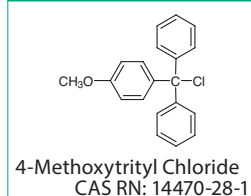
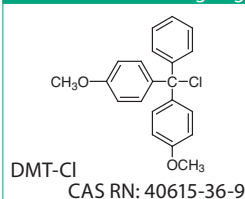
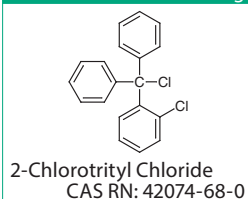
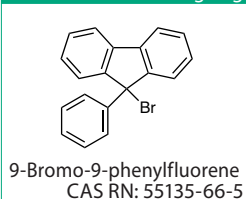
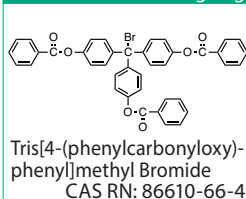
Ethyl Vinyl Ether
CAS RN: 109-92-2

M0680 25mL 100mL 500mL

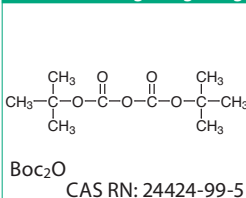
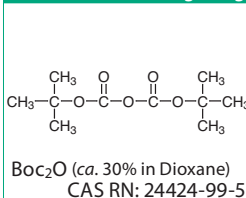
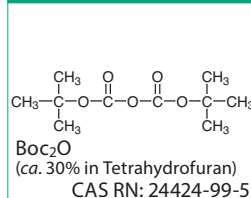
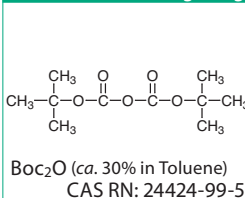
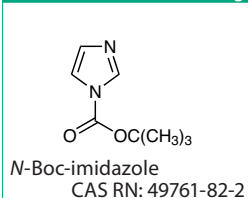
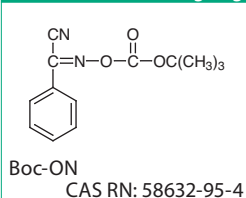
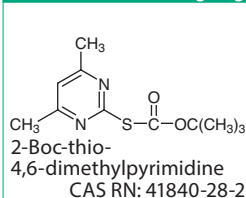
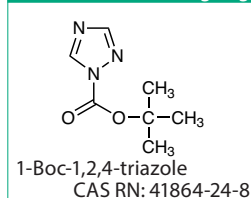
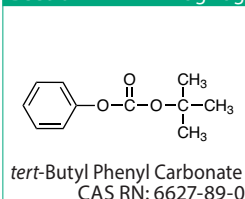
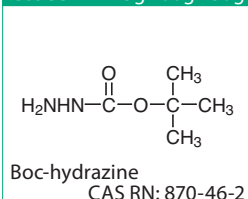
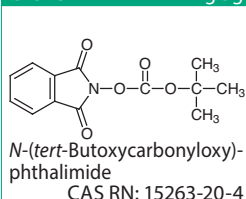
MEM-Chloride
CAS RN: 3970-21-6

M0681 5g**D0555** 25mL 100mL 500mL

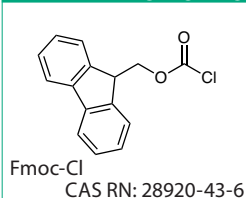
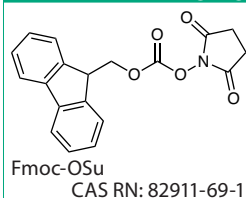
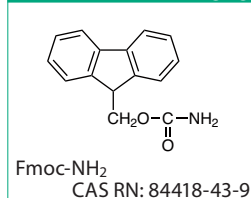
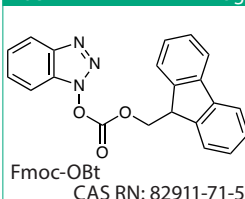
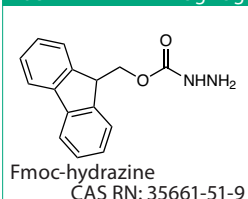
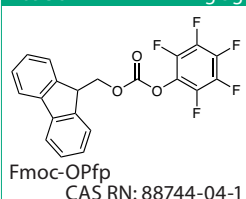
Tritylation (Tr) Reagents

C0308 25g 100g 500g**T0512** 25g 100g**M0790** 25g 100g 250g**D1612** 5g 25g**D2504** 25g**B1702** 5g 25g**T1071** 5g 25g

tert- Butoxycarbonylation (Boc) Reagents

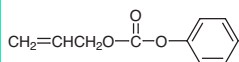
D1547 25g 100g 500g**D3878** 100g 500g**D3879** 100mL 500mL**D3880** 100g 400g**B0916** 10g**B0988** 5g 25g**B1089** 5g 25g**B1969** 5g 25g**B3590** 5g 25g**C0933** 25g 100g 250g**C1573** 1g 5g

9-Fluorenylmethyloxy carbonylation (Fmoc) Reagents

F0197 5g 25g 100g**F0239** 5g 25g**F0689** 1g 5g**F0871** 5g**F0872** 5g 25g**F0936** 1g 5g

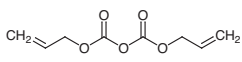
Allyloxycarbonylation Reagents, Benzyloxycarbonylation Reagents, Benzylation Reagents, Allylation Reagents

A2303 5g 25g



Allyl Phenyl Carbonate
CAS RN: 16308-68-2

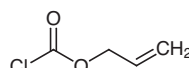
P1277 1g 5g



Diallyl Dicarboxylate
CAS RN: 115491-93-5

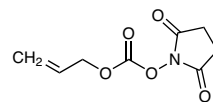
Allyloxy- carbonylation (Alloc) Reagents

A1268 25g 500g



Allyl Chloroformate
CAS RN: 2937-50-0

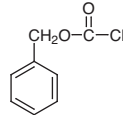
A2302 5g 25g



Allyl N-Succinimidyl
Carbonate
CAS RN: 135544-68-2

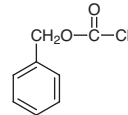
Benzyloxy- carbonylation (Cbz) Reagents

B3021 25g 250g



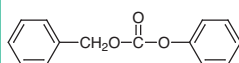
Benzyl Chloroformate
CAS RN: 501-53-1

C0176 25mL 500mL



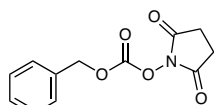
Benzyl Chloroformate
(30-35% in Toluene)
CAS RN: 501-53-1

B3574 5g 25g



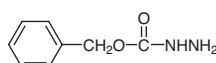
Benzyl Phenyl Carbonate
CAS RN: 28170-07-2

C1124 25g 100g 250g



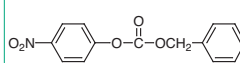
Cbz-OSu
CAS RN: 13139-17-8

C1564 5g 25g



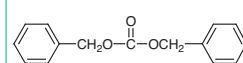
Benzyl Carbazate
CAS RN: 5331-43-1

C1591 1g 5g



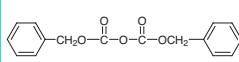
Benzyl 4-Nitrophenyl
Carbonate
CAS RN: 13795-24-9

C1600 1g 5g



Dibenzyl Carbonate
CAS RN: 3459-92-5

P1281 5g 25g



Dibenzyl Dicarboxylate
CAS RN: 31139-36-3

Benzylation (Bn) Reagents

B0412 25g 500g



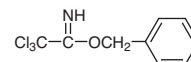
Benzyl Chloride
CAS RN: 100-44-7

B0411 25g 100g 500g



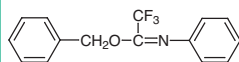
Benzyl Bromide
CAS RN: 100-39-0

B1483 25g



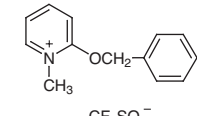
Benzyl
2,2,2-Trichloroacetimidate
CAS RN: 81927-55-1

B3234 1g 5g



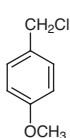
Benzyl 2,2,2-Trifluoro-
N-phenylacetimidate
CAS RN: 952057-61-3

B3361 1g 5g



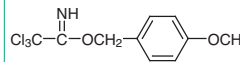
2-Benzyloxy-1-methyl-
pyridinium Triflate
CAS RN: 882980-43-0

M0676 25mL 100mL



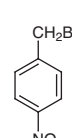
4-Methoxybenzyl Chloride
CAS RN: 824-94-2

M2016 5g 25g



4-Methoxybenzyl
2,2,2-Trichloroacetimidate
CAS RN: 89238-99-3

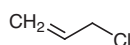
N0181 25g 100g 500g



4-Nitrobenzyl Bromide
CAS RN: 100-11-8

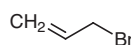
Allylation (Ally) Reagents

C0274 25mL 500mL



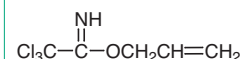
Allyl Chloride
CAS RN: 107-05-1

B0643 25g 500g



Allyl Bromide
CAS RN: 106-95-6

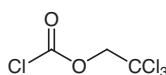
A2186 5g



Allyl
2,2,2-Trichloroacetimidate
CAS RN: 51479-73-3

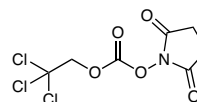
2,2,2-Trichloroethoxy- carbonylation (Troc) Reagents

C0795 25g 250g



2,2,2-Trichloroethyl
Chloroformate
CAS RN: 17341-93-4

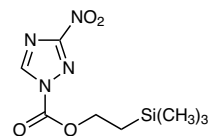
T2713 5g



N-Succinimidyl
2,2,2-Trichloroethyl Carbonate
CAS RN: 66065-85-8

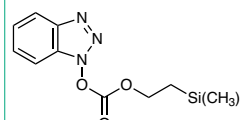
2-(Trimethylsilyl)- ethoxycarbonylation (Teoc) Reagents

T2544 1g 5g



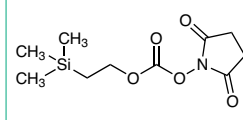
Teoc-NT
CAS RN: 1001067-09-9

T2590 1g 5g



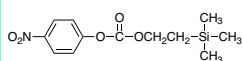
Teoc-OBt
CAS RN: 113306-55-1

T2591 1g 5g



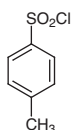
Teoc-OSu
CAS RN: 78269-85-9

T2872 5g

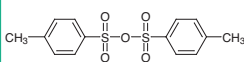
Teoc-ONp
CAS RN: 80149-80-0

Sulfonylation Reagents

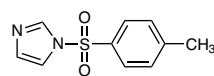
T0272 25g 500g

*p*-Toluenesulfonyl Chloride
CAS RN: 98-59-9

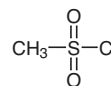
T1485 5g 25g

*p*-Toluenesulfonic Anhydride
CAS RN: 4124-41-8

T1985 5g 25g

1-(*p*-Toluenesulfonyl)-imidazole
CAS RN: 2232-08-8

M0094 25g 500g

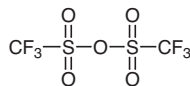
Mesityl Chloride
CAS RN: 124-63-0

Tosylation (Ts) Reagents

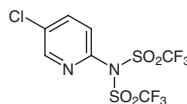
T1027 5g 25g

Trifluoromethanesulfonyl Chloride
CAS RN: 421-83-0

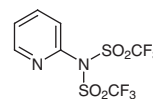
T1100 10g 25g 250g

Trifluoromethanesulfonic Anhydride
CAS RN: 358-23-6

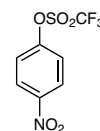
B1865 5g 25g

Comins Triflating Reagent
CAS RN: 145100-51-2

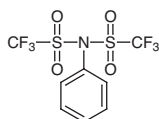
B1871 5g

2-Pyridyltriflimide
CAS RN: 145100-50-1

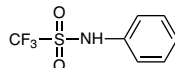
N0993 1g 5g

4-Nitrophenyl Triflate
CAS RN: 17763-80-3

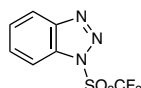
P1257 5g 25g

Phenyl Triflimide
CAS RN: 37595-74-7

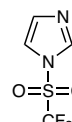
T2985 1g 5g

Trifluoromethanesulfonanilide
CAS RN: 456-64-4

T3167 1g 5g

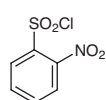
1-(Trifluoromethanesulfonyl)-1*H*-benzotriazole
CAS RN: 117632-84-5

T3177 1g 5g

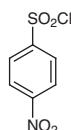
1-(Trifluoromethanesulfonyl)-imidazole
CAS RN: 29540-81-6

Nosylation (Ns) Reagents

N0142 25g 100g 500g

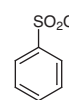
2-Nitrobenzenesulfonyl Chloride
CAS RN: 1694-92-4

N0144 5g 25g 100g

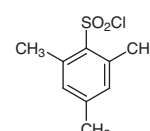
4-Nitrobenzenesulfonyl Chloride
CAS RN: 98-74-8

Other Sulfonylation Reagents

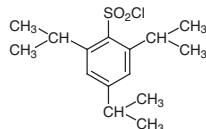
B0036 25g 500g

Benzenesulfonyl Chloride
CAS RN: 98-09-9

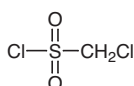
M0071 25g 100g 500g

2-Mesitylenesulfonyl Chloride
CAS RN: 773-64-8

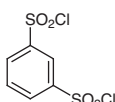
T0459 25g 100g 500g

2,4,6-Triisopropylbenzenesulfonyl Chloride
CAS RN: 6553-96-4

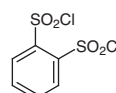
C0924 5g 25g

Chloromethylsulfonyl Chloride
CAS RN: 3518-65-8

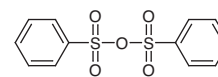
B0848 5g 25g

1,3-Benzenedisulfonyl Chloride
CAS RN: 585-47-7

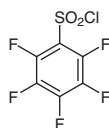
B1128 1g 5g 25g

1,2-Benzenedisulfonyl Dichloride
CAS RN: 6461-76-3

B1931 5g 25g

Benzenesulfonic Anhydride
CAS RN: 512-35-6

P0934 5g 25g

Pentafluorobenzenesulfonyl Chloride
CAS RN: 832-53-1

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