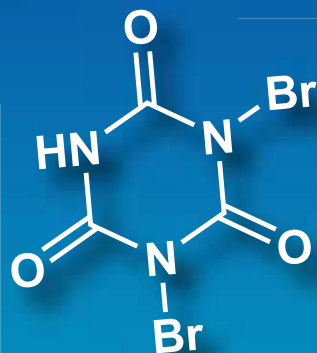
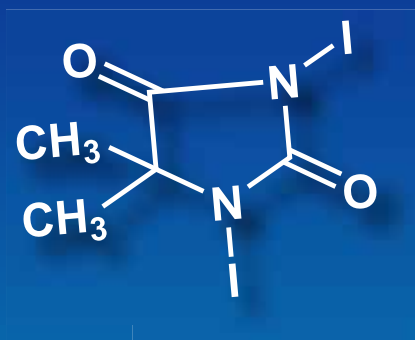
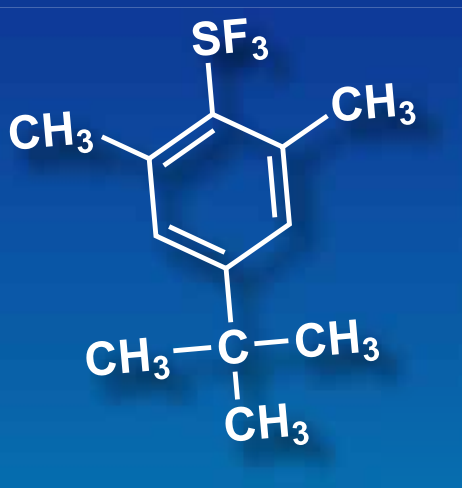


# 卤化剂

Halogenation Reagents



氟化剂

氯化剂

溴化剂

碘化剂

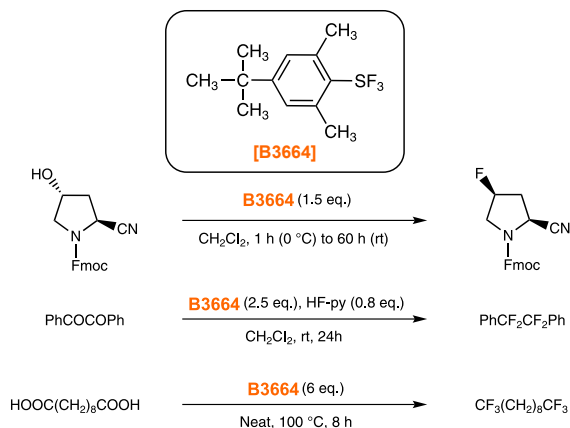
# 卤化剂

卤化反应是有机化学中的基本和重要反应，同时卤代化合物也是有机合成中极其重要的砌块。

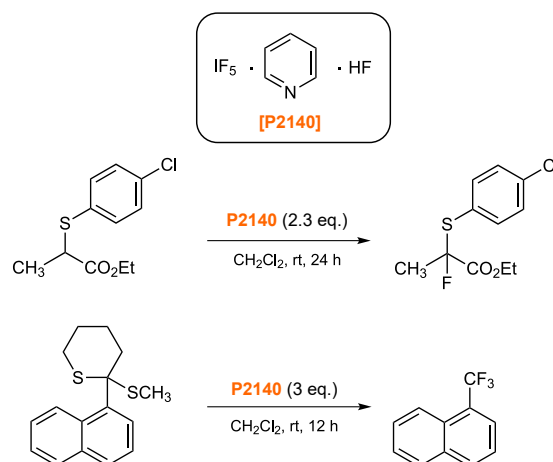
现代偶联反应的发展，例如Suzuki-Miyaura和Mizoroki-Heck反应，极大地增加了卤代化合物作为起始原料的需求。

另一方面，在药物和农药化学品等生物活性化合物的特定位置上引入氟，可以显著降低化合物的毒性，或者提高药物的功效。这都归因于氟引起的结构模拟效应和阻碍效应。在这种形势下，大量新型卤化剂被开发出来。

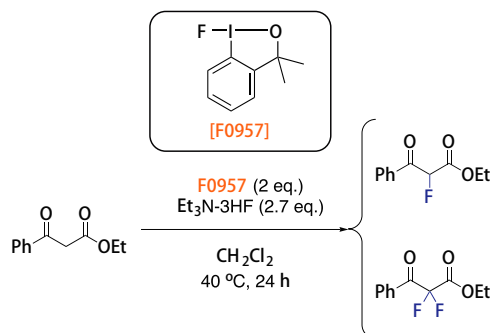
4-叔丁基-2,6-二甲基苯基三氟化硫(FLUOLEAD™) [B3664]: B3664是由Umemoto等首次报道的一种新型亲核性氟化剂<sup>1)</sup>。与DAST等其它现有的氟化剂不同，B3664是一种晶体，热稳定性高，发烟性低，因此更易于操作。B3664可以将羟基或羰基氟化，以良好的收率生成相应的氟化物<sup>1)</sup>。



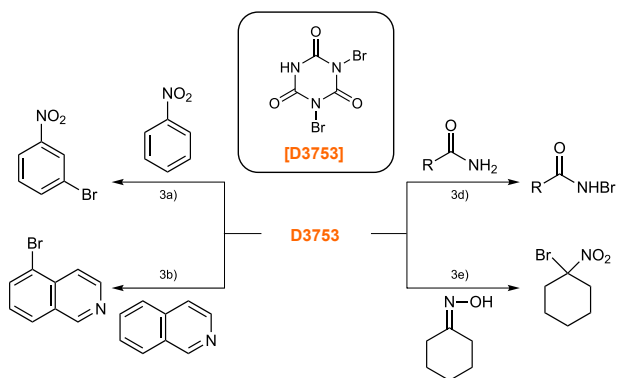
IF<sub>5</sub>-吡啶-HF(Hara试剂) [P2140]也是一种新型的氟化剂，由Hara等首次报道<sup>2)</sup>。P2140是一种空气中稳定、无吸湿性的晶体，可替代在空气中不稳定的液体IF<sub>5</sub>。P2140可用于如下多种硫化物的氟化反应。



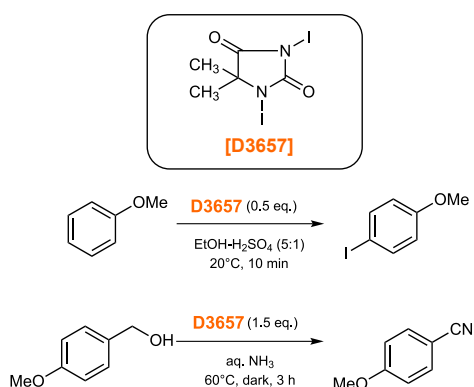
1-氟-3,3-二甲基-1,2-苯并碘氧杂戊环[F0957]是一种由Stuart等开发的高价碘衍生物<sup>3)</sup>。F0957对空气和水分稳定，被用作亲电氟化剂，用于在三乙胺三氢氟化物存在下β-酮酯的α-单氟化反应。



Gottardi等对二溴异氰尿酸(DBI) [D3753]进行了首次报道，这是一种温和并且高效的溴化剂<sup>4a,b,c)</sup>，与有机合成中常用的N-琥珀酰亚胺(NBS)相比，其具有卓越的溴化能力。比如，硝基苯与D3753在浓硫酸中，20°C条件下反应5min，以88%的高收率转化为3-溴代硝基苯<sup>4a)</sup>。然而，当与NBS反应时，在50%硫酸中，85°C条件下反应3h，收率仅为70%。因此，D3753作为一种高效的溴化剂被广泛使用<sup>4d,e)</sup>。



Orazi对一种有用的碘化剂1,3-二碘-5,5'-二甲基海因(DIH)[D3657]进行了首次报道<sup>5a)</sup>。与碘化反应中常用的分子碘或*N*-碘代丁二酰亚胺(NIS)相比，D3657具有更高的反应活性和选择性。D3657可与芳香族化合物在室温和硫酸存在的条件下顺利进行反应，高收率并且高区域选择性地得到了相应的碘化物<sup>5b)</sup>。伯醇、伯胺、仲胺及叔胺也可以通过D3657在氨水中高效地转化为相应的腈类化合物<sup>5c)</sup>。此外，反应结束后生成的二甲基海因也可以轻松通过水相萃取法去除。



除了上述几个产品，TCI还提供多种卤化剂，所有产品的列表如下。

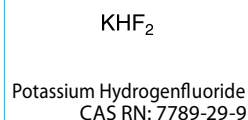
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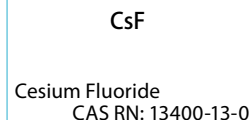
## 氟化剂 Fluorinating Agents

## 亲核氟化剂 Nucleophilic Fluorinating Agents

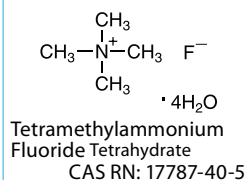
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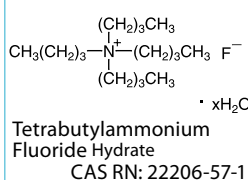
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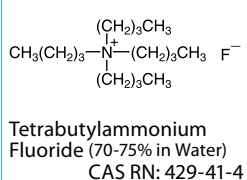
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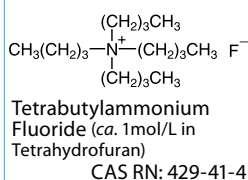
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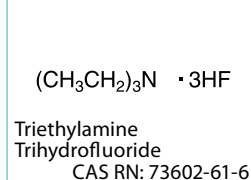
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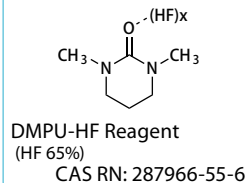
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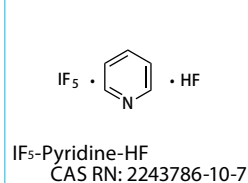
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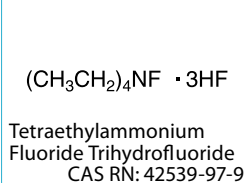
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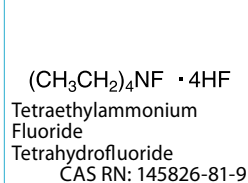
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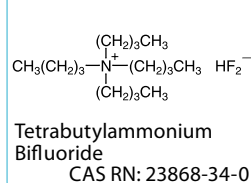
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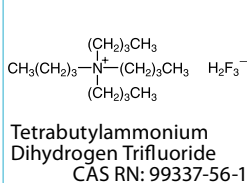
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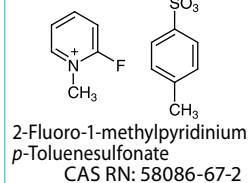
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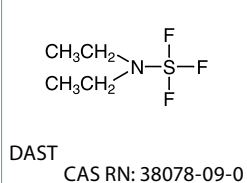
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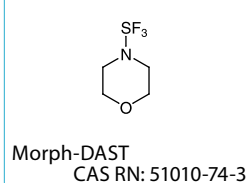
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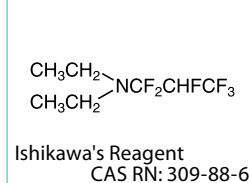
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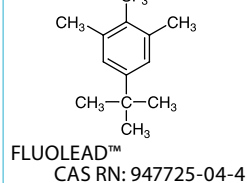
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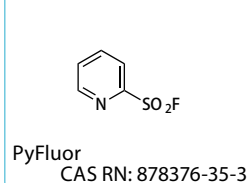
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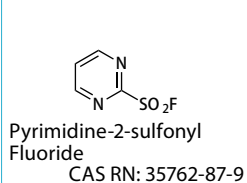
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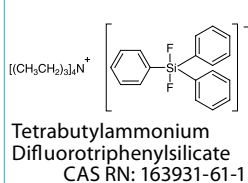
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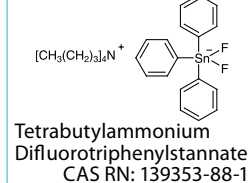
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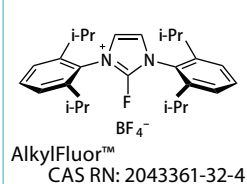
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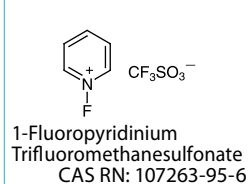


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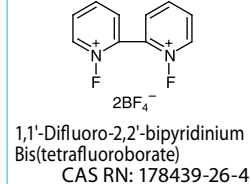


## 亲电氟化剂 Electrophilic Fluorinating Agents

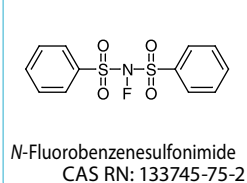
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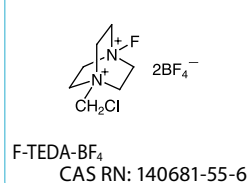
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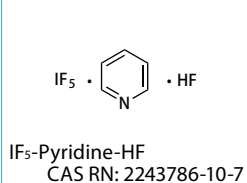
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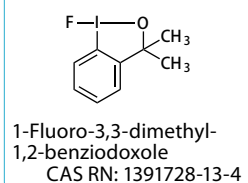
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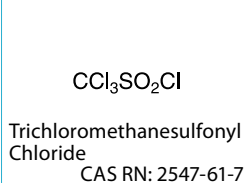


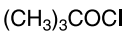
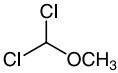
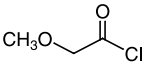
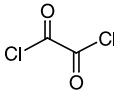
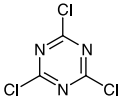
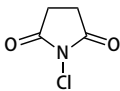
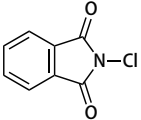
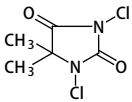
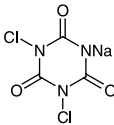
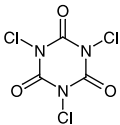
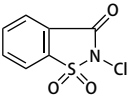
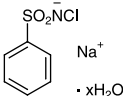

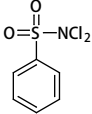
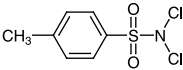
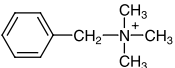
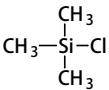

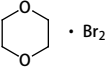
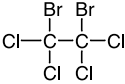

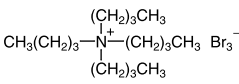
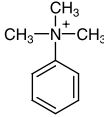
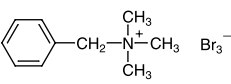
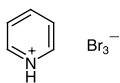
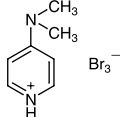
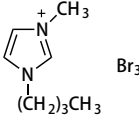
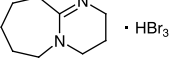
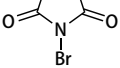
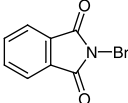
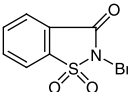
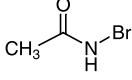
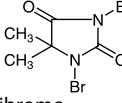
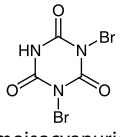
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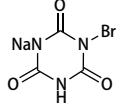
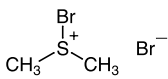
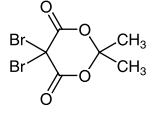
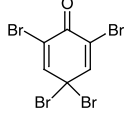
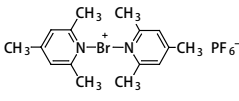
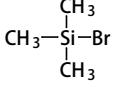

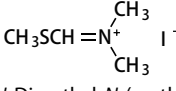
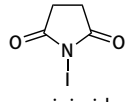
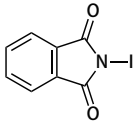
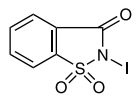
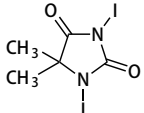

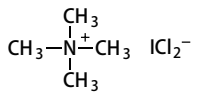
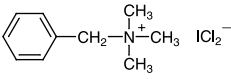
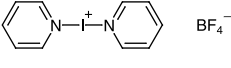
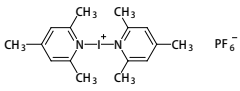


## 氯化剂 Chlorinating Agents

T0611 5g 25g



<b>H0362</b> 25g  tert-Butyl Hypochlorite CAS RN: 507-40-4	<b>D1645</b> 25g 100g 250g  Dichloromethyl Methyl Ether CAS RN: 4885-02-3	<b>M0970</b> 25g 100g 500g  Methoxyacetyl Chloride CAS RN: 38870-89-2	<b>O0082</b> 25g 100g 500g  Oxalyl Chloride CAS RN: 79-37-8	<b>C0460</b> 25g 500g  Cyanuric Chloride CAS RN: 108-77-0		
<b>C0291</b> 25g 100g 500g  N-Chlorosuccinimide (= NCS) CAS RN: 128-09-6	<b>C0802</b> 25g 500g  N-Chlorophthalimide CAS RN: 3481-09-2	<b>D1783</b> 25g 100g 500g  1,3-Dichloro-5,5-dimethylhydantoin CAS RN: 118-52-5	<b>D1003</b> 25g 500g  Sodium Dichloroisocyanurate CAS RN: 2893-78-9	<b>T0620</b> 25g 500g  Trichloroisocyanuric Acid CAS RN: 87-90-1		
<b>C1674</b> 5g 25g  N-Chlorosaccharin CAS RN: 14070-51-0	<b>C0075</b> 25g 100g 500g  Chloramine B Hydrate CAS RN: 304655-80-9	<b>C0076</b> 25g 500g  Chloramine T Trihydrate CAS RN: 7080-50-4	<b>D0317</b> 5g 25g  Dichloramine B CAS RN: 473-29-0	<b>D0318</b> 25g 100g 500g  Dichloramine T CAS RN: 473-34-7		
<b>B1543</b> 5g  Benzyltrimethylammonium Tetrachloroiodate CAS RN: 121309-88-4	<b>C0306</b> 25mL 100mL 500mL  Trimethylsilyl Chloride CAS RN: 75-77-4	<h2 style="color: white; background-color: #0070c0; padding: 10px; border-radius: 5px;">溴化剂</h2> <h3 style="color: white; background-color: #0070c0; padding: 5px; border-radius: 5px;">Brominating Agents</h3>				
<b>B0662</b> 25g 500g  Bromotrichloromethane CAS RN: 75-62-7	<b>B2719</b> 5g 25g  Bromine - 1,4-Dioxane Complex CAS RN: 15481-39-7	<b>D1987</b> 25g  1,2-Dibromo-1,1,2,2-tetrachloroethane CAS RN: 630-25-1	<b>T0038</b> 5g 25g 100g 500g  Carbon Tetrabromide CAS RN: 558-13-4	<b>T1284</b> 25g 100g 500g  Tetrabutylammonium Tribromide CAS RN: 38932-80-8	<b>P0928</b> 25g 500g  Trimethylphenylammonium Tribromide CAS RN: 4207-56-1	<b>T1382</b> 5g 25g  Benzyltrimethylammonium Tribromide CAS RN: 111865-47-5
<b>P0825</b> 25g 100g 500g  Pyridinium Bromide Perbromide CAS RN: 39416-48-3	<b>D1787</b> 5g 25g  4-Dimethylaminopyridinium Bromide Perbromide CAS RN: 92976-81-3	<b>B3596</b> 5g  1-Butyl-3-methylimidazolium Tribromide CAS RN: 820965-08-0	<b>D3976</b> 5g  1,8-Diazabicyclo[5.4.0]-7-undecene Hydrogen Tribromide CAS RN: 138666-59-8	<b>B0656</b> 25g 100g 500g  N-Bromosuccinimide (= NBS) CAS RN: 128-08-5		
<b>B1697</b> 5g 25g  N-Bromophthalimide CAS RN: 2439-85-2	<b>B2152</b> 5g 25g  N-Bromosaccharin CAS RN: 35812-01-2	<b>B0530</b> 5g 25g  N-Bromoacetamide CAS RN: 79-15-2	<b>D1265</b> 25g 500g  1,3-Dibromo-5,5-dimethylhydantoin CAS RN: 77-48-5	<b>D3753</b> 1g 5g 25g  Dibromoisocyanuric Acid (= DBI) CAS RN: 15114-43-9		

<p><b>B2148</b> 25g</p>  <p>Monosodium Bromoisocyanurate CAS RN: 164918-61-0</p>	<p><b>B2553</b> 25mL 100mL</p> <p><b>BBr<sub>3</sub></b></p> <p>Boron Tribromide (17% in Dichloromethane, ca. 1mol/L) CAS RN: 10294-33-4</p>	<p><b>P1743</b> 300g</p> <p><b>PBr<sub>3</sub></b></p> <p>Phosphorus Tribromide CAS RN: 7789-60-8</p>	<p><b>B3311</b> 5g 25g</p>  <p>Bromodimethylsulfonium Bromide CAS RN: 50450-21-0</p>	<p><b>D1710</b> 5g 25g</p>  <p>5,5-Dibromomeldrum's Acid CAS RN: 66131-14-4</p>			
<p><b>T1235</b> 5g 25g</p>  <p>2,4,4,6-Tetrabromo-2,5-cyclohexadienone CAS RN: 20244-61-5</p>	<p><b>B2358</b> 1g 5g</p>  <p>Bis(2,4,6-trimethylpyridine)-bromonium Hexafluorophosphate CAS RN: 188944-77-6</p>	<p><b>B1087</b> 5mL 25mL 250mL</p>  <p>Trimethylsilyl Bromide CAS RN: 2857-97-8</p>					
<p><b>碘化剂</b> <b>Iodinating Agents</b></p>					<p><b>I0604</b> 25g 500g</p> <p><b>I<sub>2</sub></b></p> <p>Iodine CAS RN: 7553-56-2</p>	<p><b>H1221</b> 300mL</p> <p><b>HI</b></p> <p>Hydriodic Acid (57%) CAS RN: 10034-85-2</p>	<p><b>C0936</b> 10g</p>  <p>Carbon Tetraiodide CAS RN: 507-25-5</p>
<p><b>C1190</b> 1g 5g</p> <p><b>ICH<sub>2</sub>CH<sub>2</sub>Cl</b></p> <p>1-Chloro-2-iodoethane CAS RN: 624-70-4</p>	<p><b>D4340</b> 5g 25g</p>  <p><i>N,N</i>-Dimethyl-<i>N</i>-(methylsulfanylmethylene)-ammonium Iodide CAS RN: 29085-13-0</p>	<p><b>I0074</b> 5g 25g 100g</p>  <p><i>N</i>-Iodosuccinimide (=NIS) CAS RN: 516-12-1</p>	<p><b>I1052</b> 5g 25g</p>  <p><i>N</i>-Iodophthalimide CAS RN: 20919-42-0</p>	<p><b>I0784</b> 5g</p>  <p><i>N</i>-Iodosaccharin CAS RN: 86340-94-5</p>			
<p><b>D3657</b> 5g 25g</p>  <p>1,3-Diiodo-5,5-dimethylhydantoin (=DIH) CAS RN: 2232-12-4</p>	<p><b>P2086</b> 1g 5g</p>  <p>Pyridine Iodine Monochloride CAS RN: 6443-90-9</p>	<p><b>T2717</b> 5g</p>  <p>Tetramethylammonium Dichloroiodate CAS RN: 1838-41-1</p>	<p><b>B1604</b> 5g 25g</p>  <p>Benzyltrimethylammonium Dichloroiodate CAS RN: 114971-52-7</p>	<p><b>B2539</b> 1g</p>  <p>Bis(pyridine)iodonium Tetrafluoroborate CAS RN: 15656-28-7</p>			
<p><b>B2359</b> 1g 5g</p>  <p>Bis(2,4,6-trimethylpyridine)iodonium Hexafluorophosphate CAS RN: 113119-46-3</p>							





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