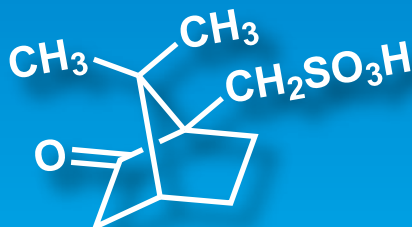
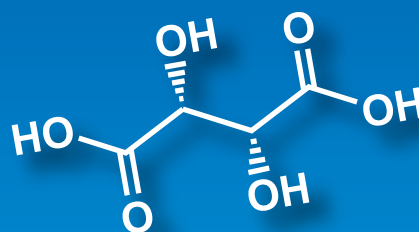
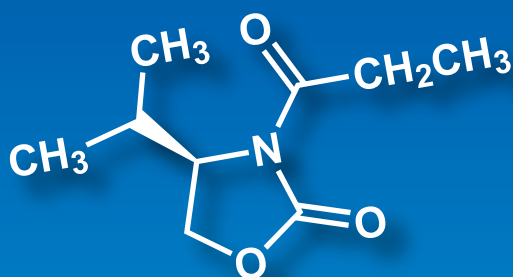


Chiral Auxiliaries and Optical Resolving Agents



Chiral Auxiliaries

Optical Resolving Agents

Chiral Auxiliaries and Optical Resolving Agents

Most bioactive substances are optically active. For instance, if a substance is synthesized as a racemic compound, its enantiomer may show no activity or even undesired bioactivity. Thus, methods to gain enantiopure compounds have been developed. When synthesizing enantiopure compounds, the methods are roughly divided into three methods.

Chiral pool method:

The method using an easily available chiral compound as a starting material like an amino acid or sugar.

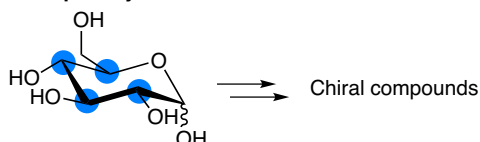
Asymmetric synthesis:

The method to introduce an asymmetric point to compounds without an asymmetric point. Syntheses using achiral auxiliaries are included here.

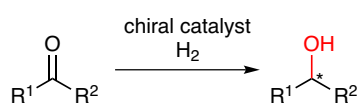
Optical resolution:

The method to separate a racemic compound into two enantiomers. The direct method using a chiral column and the indirect method to separate two enantiomers using optical resolving agents to convert into diastereomers are examples.

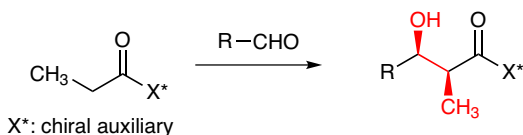
Chiral pool synthesis



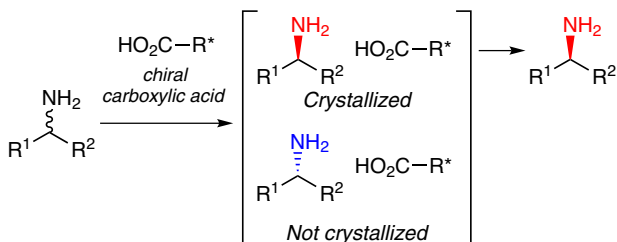
Asymmetric synthesis



Asymmetric synthesis with chiral auxiliaries



Optical resolution

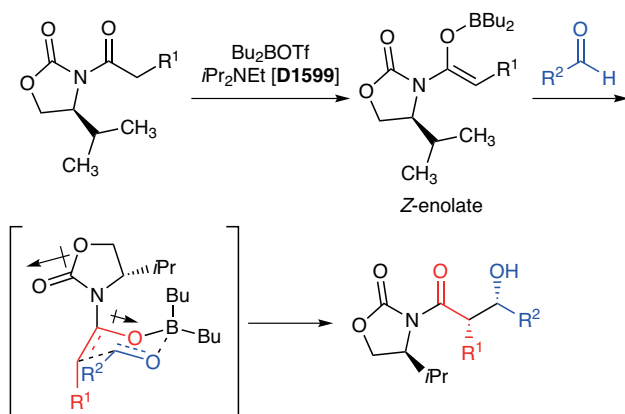


This brochure introduces a variety of chiral auxiliaries and optical resolving agents. We hope that it will be useful for your research of the synthesis of optically active compounds. Additionally, TCI has some brochures introducing chiral compounds for the chiral pool method in “Chiral Building Blocks”, “Terpenes”, “Amino Acids” and other brochures. Sugar derivatives are also introduced in a catalog, “Reagents for Glyco Chemistry & Biology”, and category pages of sugar chains. Furthermore, TCI has many kinds of catalysts for asymmetric synthesis and introduce them in brochures such as “Asymmetric Synthesis” and “Asymmetric Organocatalysts”, and other contents.

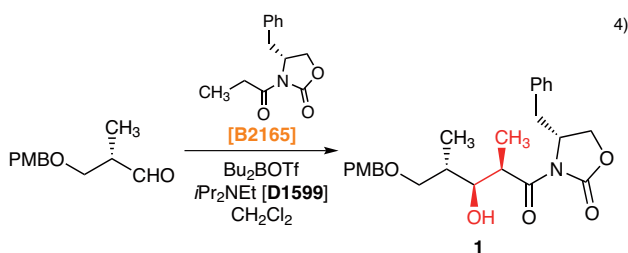
You can search our information through “asymmetric synthesis” as a keyword.

● Reactions with Chiral Auxiliaries

One of the most famous named reactions using chiral auxiliaries¹⁾ is the Evans aldol reaction.²⁾ This reaction is quite useful because this reaction can efficiently introduce two asymmetric carbons into chain-shaped compounds and the stereochemistry of the product can be expected. Additionally, *N*-acyloxazolidinones are commercially available and can be prepared from amino acid derivatives and the chiral auxiliaries are removed by the hydrolysis or the conversion to Weinreb amide, so that it is superior in ease of use. Furthermore, all of the diastereomers can be synthesized by maintaining the chiral auxiliaries and Lewis acids.³⁾

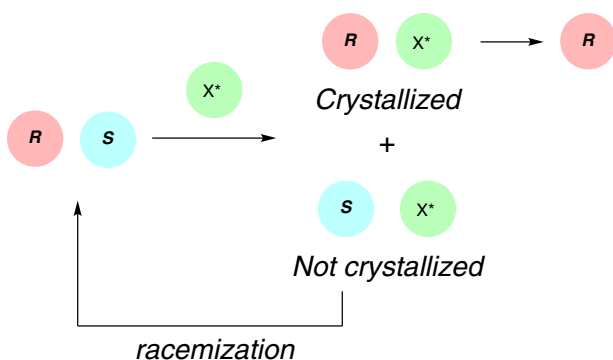


The Evans aldol reaction is applicable to larger scales. For example, the research group of Novartis used this reaction in the large-scale synthesis of discodermolide⁴⁾ and they implemented the below reaction at the 30 kg scale, which afforded the intermediate **1** in high diastereoselectivity and enantioselectivity.



● Optical Resolution

Optical resolution⁵⁾ is used in the manufacture of medicines even now, although it has some disadvantages as follows: theoretically, half of the substance will be lost; a selection process of the reagents for optical resolution and separation of the reagents is needed. However, if the undesired enantiomer can be racemized, it will be possible to do optical resolution again and the recovery rate of the desired product will be raised.



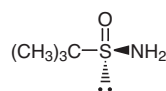
References

- 1) reviews of chiral auxiliaries:
 - a) W. Oppolzer, *Tetrahedron* **1987**, *43*, 1969.
 - b) H. Waldmann, *Synthesis* **1994**, 535.
 - c) V. Farina, J. T. Reeves, C. H. Senanayake, J. J. Song, *Chem. Rev.* **2006**, *106*, 2734.
 - d) X. Salom-Roig, C. Bauder, *Synthesis* **2020**, *52*, 535.
- 2) a) D. A. Evans, J. Bartroli, T. L. Shih, *J. Am. Chem. Soc.* **1981**, *103*, 2127.
 - b) review: D. A. Evans, J. M. Takacs, L. R. McGee, M. D. Ennis, D. J. Mathre, J. Bartroli, *Pure Appl. Chem.* **1981**, *53*, 1109.
- 3) a) M. A. Walker, C. H. Heathcock, *J. Org. Chem.* **1991**, *56*, 5747.
 - b) M. T. Crimmins, B. W. King, E. A. Tabet, *J. Am. Chem. Soc.* **1997**, *119*, 7883.
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 - d) D. A. Evans, C. W. Downey, J. T. Shaw, J. S. Tedrow, *J. Am. Chem. Soc.* **2002**, *124*, 392.
- 4) S. J. Mickel, G. H. Sedelmeier, D. Niederer, R. Daeffler, A. Osmani, K. Schreiner, M. Seeger-Weibel, B. Bérod, K. Schaer, R. Gamboni, S. Chen, W. Chen, C. T. Jagoe, F. R. Kinder, M. Loo, K. Prasad, O. Repič, W.-C. Shieh, R.-M. Wang, L. Waykole, D. D. Xu, S. Xue, *Org. Proc. Res. Dev.* **2004**, *8*, 92.
- 5) reviews of optical resolution:
 - a) A. Collet, M. J. Brienne, J. Jacques, *Chem. Rev.* **1980**, *80*, 215.
 - b) E. Fogassy, M. Nógrádi, D. Kozma, G. Egri, E. Pálovics, V. Kiss, *Org. Biomol. Chem.* **2006**, *4*, 3011.
 - c) F. Faigl, E. Fogassy, M. Nógrádi, E. Pálovics, J. Schindler, *Tetrahedron Asymmetry* **2008**, *19*, 519.
 - d) S. H. Wilen, A. Collet, J. Jacques, *Tetrahedron* **1977**, *33*, 2725.

Chiral Auxiliaries

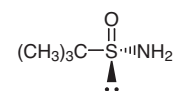
Sulfinamides

B2907 1g 5g



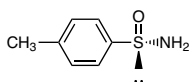
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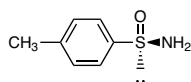
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T2069 1g 5g



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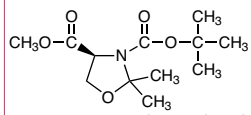
T2814 200mg 1g



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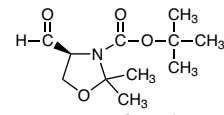
Oxazolidines

B1755 1g 5g 25g



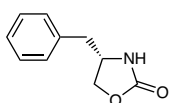
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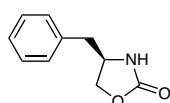
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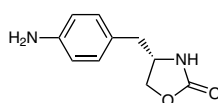
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B1786 5g 25g



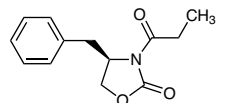
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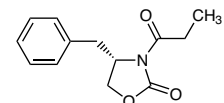
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B2165 1g 5g 25g



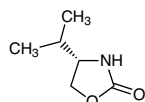
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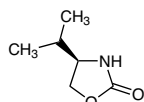
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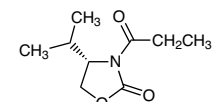
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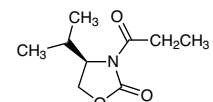
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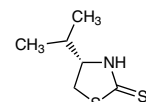
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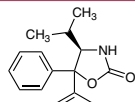
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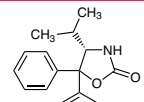
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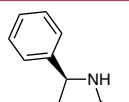
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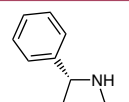
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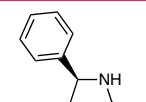
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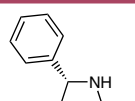
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P1959 1g



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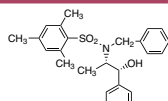
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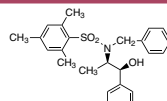
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B2103 1g 5g



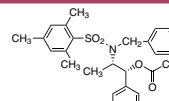
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CAS RN: 187324-63-6

B2104 1g 5g



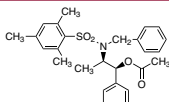
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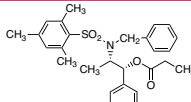
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CAS RN: 240423-74-9

A1535 1g



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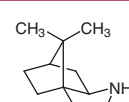
P1371 1g



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Camphorsultams

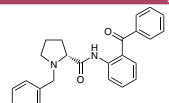
C1325 1g 5g



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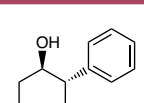
Others

B5518 1g 5g



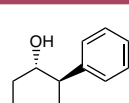
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CAS RN: 105024-93-9

T1490 100mg 1g



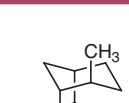
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T1491 100mg 1g



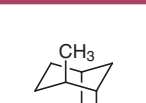
(1*S*,2*R*)-(+)-*trans*-2-Phenyl-1-cyclohexanol
CAS RN: 34281-92-0

T2578 1g 5g



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T2579 1g 5g

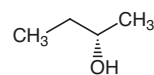


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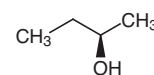
Optical Resolving Agents

Alcohols

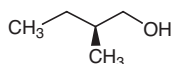
B0925 1mL 5mL

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CAS RN: 4221-99-2

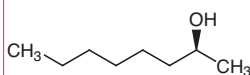
B0926 1mL 5mL

(R)-(-)-2-Butanol
CAS RN: 14898-79-4

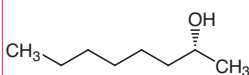
M0170 25mL

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CAS RN: 1565-80-6

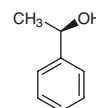
O0144 5mL 25mL

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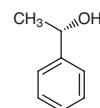
O0145 5mL 25mL

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CAS RN: 5978-70-1

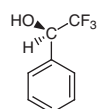
P0795 1g 5g 25g

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Alcohol
CAS RN: 1517-69-7

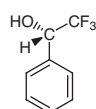
P0796 1g 5g 25g

(S)-(-)-1-Phenylethyl
Alcohol
CAS RN: 1445-91-6

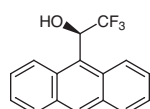
P1367 1g

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CAS RN: 10531-50-7

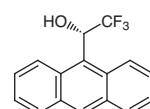
P1368 1g

(S)-(+)-1-Phenyl-
2,2,2-trifluoroethanol
CAS RN: 340-06-7

T1520 100mg

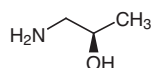
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2,2,2-trifluoroethanol
CAS RN: 53531-34-3

T1521 100mg 1g

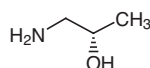
(S)-(+)-1-(9-Anthryl)-
2,2,2-trifluoroethanol
CAS RN: 60646-30-2

Amines and Aminoalcohols

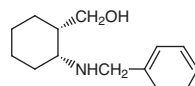
A0974 1g 5g 25g

(R)-(-)-1-Amino-2-propanol
CAS RN: 2799-16-8

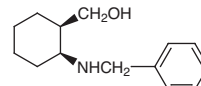
A0975 1g 5g

(S)-(+)-1-Amino-2-propanol
CAS RN: 2799-17-9

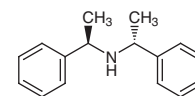
B1118 1g 5g

(-)-cis-2-Benzylamino-
cyclohexanemethanol
CAS RN: 71581-93-6

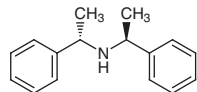
B1119 1g 5g

(+)cis-2-Benzylamino-
cyclohexanemethanol
CAS RN: 71581-92-5

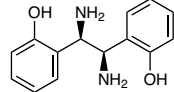
B2034 5g

(R,R)-(+)-
Bis(alpha-methylbenzyl)amine
Hydrochloride
CAS RN: 82398-30-9

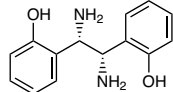
B2035 5g

(S,S)-(-)-
Bis(alpha-methylbenzyl)amine
Hydrochloride
CAS RN: 40648-92-8

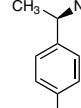
B3012 100mg 1g

(1R,2R)-
1,2-Bis(2-hydroxyphenyl)-
ethylenediamine
CAS RN: 870991-70-1

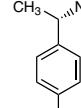
B3014 1g

(1S,2S)-
1,2-Bis(2-hydroxyphenyl)-
ethylenediamine
CAS RN: 870991-68-7

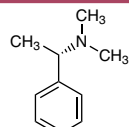
B3672 1g 5g

(R)-(+)-1-(4-Bromophenyl)-
ethylamine
CAS RN: 45791-36-4

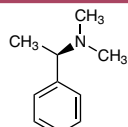
B3674 5g 25g

(S)-(-)-1-(4-Bromophenyl)-
ethylamine
CAS RN: 27298-97-1

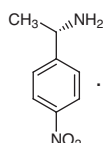
D1687 1g 5g

(S)-(-)-N,N-Dimethyl-
1-phenylethylamine
CAS RN: 17279-31-1

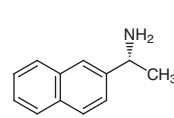
D1707 1mL

(R)-(+)-N,N-Dimethyl-
1-phenylethylamine
CAS RN: 19342-01-9

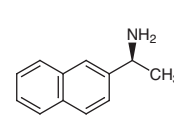
N0543 1g

(S)-Nitroresolve
CAS RN: 132873-57-5

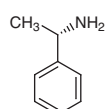
N0724 1g 5g

(R)-1-(2-Naphthyl)ethylamine
CAS RN: 3906-16-9

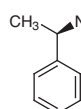
N0726 1g 5g

(S)-1-(2-Naphthyl)ethylamine
CAS RN: 3082-62-0

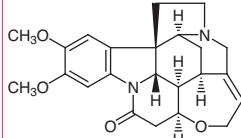
P0793 25mL 100mL 500mL

(S)-(-)-1-Phenylethylamine
CAS RN: 2627-86-3

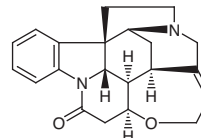
P0794 25mL 100mL 500mL

(R)-(+)-1-Phenylethylamine
CAS RN: 3886-69-9

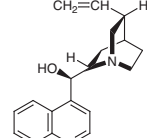
B0946 25g

Brucine Anhydrous
CAS RN: 357-57-3

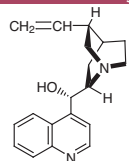
S0249 25g

Strychnine
CAS RN: 57-24-9

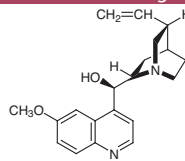
C0347 25g 100g

Cinchonidine
CAS RN: 485-71-2

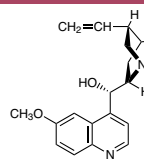
C0350 25g 200g

Cinchonine
CAS RN: 118-10-5

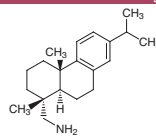
Q0028 25g 100g

Quinine
CAS RN: 130-95-0

Q0006 5g 25g

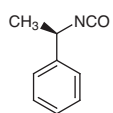
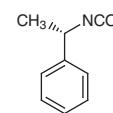
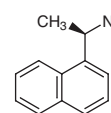
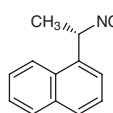
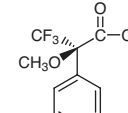
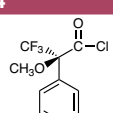
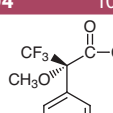
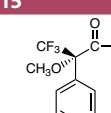
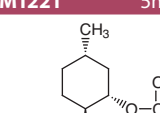
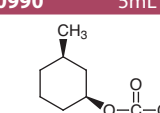
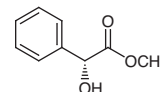
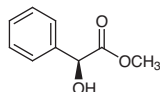
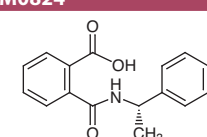
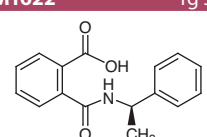
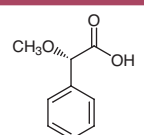
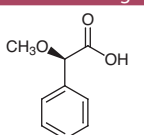
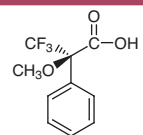
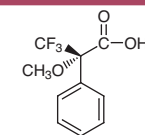
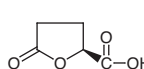
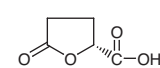
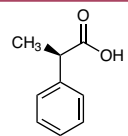
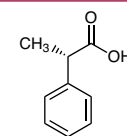
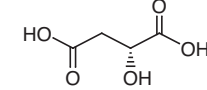
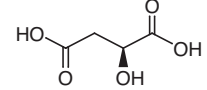
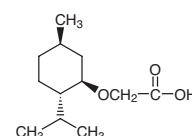
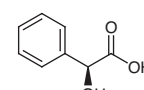
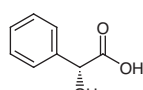
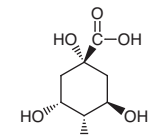
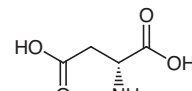
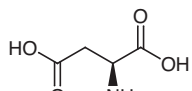
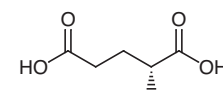
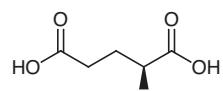
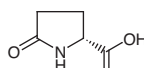
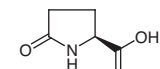
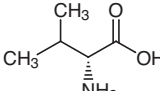
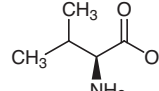
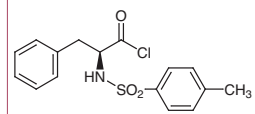
Quinidine
CAS RN: 56-54-2

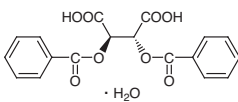
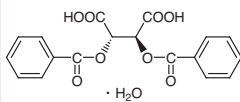
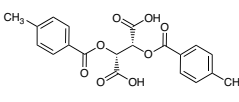
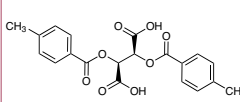
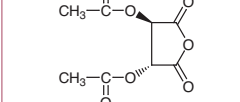
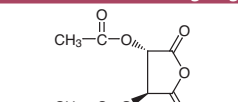
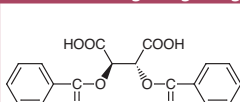
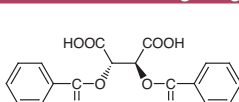
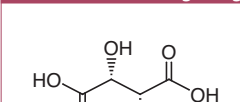
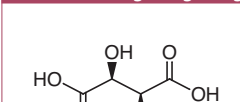
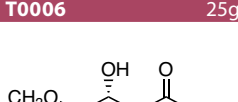
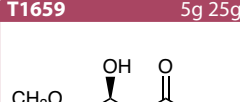
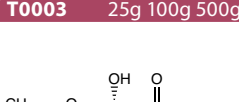
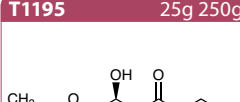
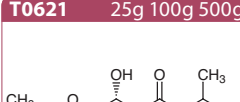
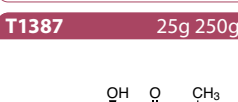
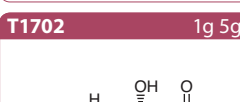
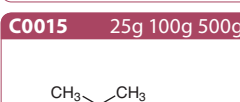
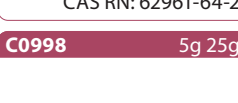
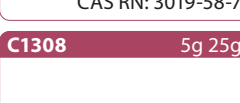

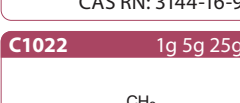
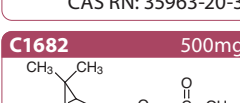
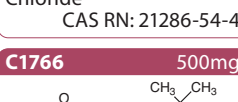
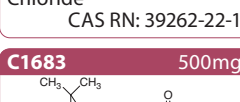
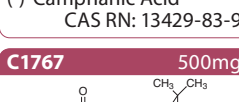
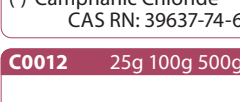
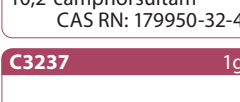
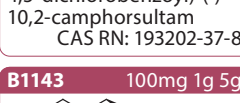
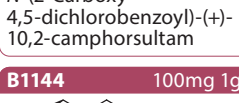

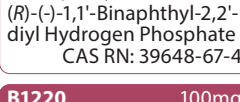
D1588 5g 25g

(+)Dehydroabietylamine
CAS RN: 1446-61-3

Carbonyl Compounds

Chiral Auxiliaries and Optical Resolving Agents

<p>I0334 1g 5g 25g</p>  <p>(<i>R</i>)-(+)-α-Methylbenzyl isocyanate CAS RN: 33375-06-3</p>	<p>I0335 1g 5g</p>  <p>(<i>S</i>)-(-)-α-Methylbenzyl isocyanate CAS RN: 14649-03-7</p>	<p>I0336 1g 5g</p>  <p>(<i>R</i>)-(-)-1-(1-Naphthyl)ethyl isocyanate CAS RN: 42340-98-7</p>	<p>I0398 1g 5g</p>  <p>(<i>S</i>)-(+)-1-(1-Naphthyl)ethyl isocyanate CAS RN: 73671-79-1</p>	<p>M1103 100mg 1g</p>  <p>(<i>S</i>)-(+)-MTPA-Cl CAS RN: 20445-33-4</p>	
<p>M2214 5g</p>  <p>(<i>S</i>)-(+)-MTPA-Cl (ca. 18% in Dichloromethane, ca. 1.0mol/L) CAS RN: 20445-33-4</p>	<p>M1104 100mg 1g</p>  <p>(<i>R</i>)-(-)-MTPA-Cl CAS RN: 39637-99-5</p>	<p>M2215 5g</p>  <p>(<i>R</i>)-(-)-MTPA-Cl (ca. 18% in Dichloromethane, ca. 1.0mol/L) CAS RN: 39637-99-5</p>	<p>M1221 5mL 25mL</p>  <p>(+)-Menthyl Chloroformate CAS RN: 7635-54-3</p>	<p>M0990 5mL 25mL</p>  <p>(-)-Menthyl Chloroformate CAS RN: 14602-86-9</p>	
<p>M1349 1g 5g</p>  <p>Methyl D-(-)-Mandelate CAS RN: 20698-91-3</p>	<p>M1350 1g 5g</p>  <p>Methyl L-(+)-Mandelate CAS RN: 21210-43-5</p>	<p>Carboxylic Acids</p>		<p>M0824 1g</p>  <p>(<i>S</i>)-(-)-<i>N</i>-(1-Phenylethyl)-phthalamic Acid CAS RN: 21752-36-3</p>	<p>M1622 1g 5g</p>  <p>(<i>R</i>)-(+)-<i>N</i>-(1-Phenylethyl)-phthalamic Acid CAS RN: 21752-35-2</p>
<p>M0829 1g 5g</p>  <p>(<i>S</i>)-(+)-α-Methoxyphenylacetic Acid CAS RN: 26164-26-1</p>	<p>M0830 100mg 1g 5g</p>  <p>(<i>R</i>)-(-)-α-Methoxyphenylacetic Acid CAS RN: 3966-32-3</p>	<p>M0831 1g 5g</p>  <p>(+)-MTPA CAS RN: 20445-31-2</p>	<p>M0832 1g 5g</p>  <p>(-)-MTPA CAS RN: 17257-71-5</p>	<p>O0276 1g 5g</p>  <p>(<i>S</i>)-(+)-γ-Carboxy-γ-butyrolactone CAS RN: 21461-84-7</p>	
<p>O0281 1g 5g</p>  <p>(<i>R</i>)-(-)-γ-Carboxy-γ-butyrolactone CAS RN: 53558-93-3</p>	<p>P1219 1g 5g</p>  <p>(<i>R</i>)-(-)-Hydratropic Acid CAS RN: 7782-26-5</p>	<p>P1220 1g 5g</p>  <p>(<i>S</i>)-(+)-Hydratropic Acid CAS RN: 7782-24-3</p>	<p>M0021 5g 25g</p>  <p>D-(+)-Malic Acid CAS RN: 636-61-3</p>	<p>M0022 25g 100g 500g</p>  <p>L-(-)-Malic Acid CAS RN: 97-67-6</p>	
<p>M0573 5g 25g</p>  <p>(-)-Menthoxylacetic Acid CAS RN: 40248-63-3</p>	<p>M0661 25g 100g 250g</p>  <p>L-(+)-Mandelic Acid CAS RN: 17199-29-0</p>	<p>M0662 25g 100g 500g</p>  <p>D-(-)-Mandelic Acid CAS RN: 611-71-2</p>	<p>Q0009 5g 25g</p>  <p>D-(-)-Quinic Acid CAS RN: 77-95-2</p>	<p>Amino Acid Derivatives</p>	
<p>A0545 25g</p>  <p>D-Aspartic Acid CAS RN: 1783-96-6</p>	<p>A0546 25g 500g</p>  <p>L-Aspartic Acid CAS RN: 56-84-8</p>	<p>G0057 25g 100g 250g</p>  <p>D-Glutamic Acid CAS RN: 6893-26-1</p>	<p>G0059 25g 500g</p>  <p>L-Glutamic Acid CAS RN: 56-86-0</p>	<p>P1354 5g 25g</p>  <p>D-Pyroglutamic Acid CAS RN: 4042-36-8</p>	
<p>P0573 25g 100g 500g</p>  <p>L-Pyroglutamic Acid CAS RN: 98-79-3</p>	<p>V0012 1g 25g</p>  <p>D-Valine CAS RN: 640-68-6</p>	<p>V0014 25g 100g 500g</p>  <p>L-Valine CAS RN: 72-18-4</p>	<p>T1444 1g 5g</p>  <p>Tosyl-L-phenylalanyl Chloride CAS RN: 29739-88-6</p>	<p>Tartaric Acid Derivatives</p>	

<p>D1354 25g 500g</p>  <p>(-)-Dibenzoyl-L-tartaric Acid Monohydrate CAS RN: 62708-56-9</p>	<p>D1398 25g 500g</p>  <p>(+)-Dibenzoyl-D-tartaric Acid Monohydrate CAS RN: 80822-15-7</p>	<p>D1387 25g 250g</p>  <p>(-)-Di-<i>p</i>-toluoyl-L-tartaric Acid CAS RN: 32634-66-5</p>	<p>D1417 25g 250g</p>  <p>(+)-Di-<i>p</i>-toluoyl-D-tartaric Acid CAS RN: 32634-68-7</p>	<p>D1911 25g</p>  <p>(+)-Diacetyl-L-tartaric Anhydride CAS RN: 6283-74-5</p>	
<p>D2645 5g 25g</p>  <p>(-)-Diacetyl-D-tartaric Anhydride CAS RN: 70728-23-3</p>	<p>D3492 25g 100g 250g</p>  <p>(-)-Dibenzoyl-L-tartaric Acid CAS RN: 2743-38-6</p>	<p>D3826 25g 250g</p>  <p>(+)-Dibenzoyl-D-tartaric Acid CAS RN: 17026-42-5</p>	<p>T0025 25g 500g</p>  <p>L-(+)-Tartaric Acid CAS RN: 87-69-4</p>	<p>T0026 25g 100g 500g</p>  <p>D-(-)-Tartaric Acid CAS RN: 147-71-7</p>	
<p>T0006 25g</p>  <p>Dimethyl L-(+)-Tartrate CAS RN: 608-68-4</p>	<p>T1659 5g 25g</p>  <p>Dimethyl D-(-)-Tartrate CAS RN: 13171-64-7</p>	<p>T0003 25g 100g 500g</p>  <p>Diethyl L-(+)-Tartrate CAS RN: 87-91-2</p>	<p>T1195 25g 250g</p>  <p>Diethyl D-(-)-Tartrate CAS RN: 13811-71-7</p>	<p>T0621 25g 100g 500g</p>  <p>Diisopropyl L-(+)-Tartrate CAS RN: 2217-15-4</p>	
<p>T1387 25g 250g</p>  <p>Diisopropyl D-(-)-Tartrate CAS RN: 62961-64-2</p>	<p>T1702 1g 5g</p>  <p>(2<i>R</i>,3<i>R</i>)-Tartranilic Acid CAS RN: 3019-58-7</p>	<p>Camphor Derivatives</p>		<p>C0015 25g 100g 500g</p>  <p>(+)-CSA CAS RN: 3144-16-9</p>	
<p>C0998 5g 25g</p>  <p>(+)-10-Camphorsulfonyl Chloride CAS RN: 21286-54-4</p>	<p>C1308 5g 25g</p>  <p>(-)-10-Camphorsulfonyl Chloride CAS RN: 39262-22-1</p>	<p>C1021 1g 5g</p>  <p>(-)-Camphanic Acid CAS RN: 13429-83-9</p>	<p>C1022 1g 5g 25g</p>  <p>(-)-Camphanic Chloride CAS RN: 39637-74-6</p>	<p>C0972 25g 100g 500g</p>  <p>(-)-CSA CAS RN: 35963-20-3</p>	
<p>C1766 500mg</p>  <p><i>N</i>-(2-Carboxybenzoyl)-(-)-10,2-camphorsultam</p>	<p>C1683 500mg</p>  <p><i>N</i>-(2-Carboxy-4,5-dichlorobenzoyl)-(-)-10,2-camphorsultam CAS RN: 193202-37-8</p>	<p>C1767 500mg</p>  <p><i>N</i>-(2-Carboxy-4,5-dichlorobenzoyl)-(+)-10,2-camphorsultam</p>	<p>C0012 25g 100g 500g</p>  <p>(+)-Camphoric Acid CAS RN: 124-83-4</p>	<p>C1682 500mg</p>  <p><i>N</i>-(2-Carboxybenzoyl)-(-)-10,2-camphorsultam CAS RN: 179950-32-4</p>	
<p>Phosphorous Compounds</p>		<p>B1143 100mg 1g 5g</p>  <p>(<i>R</i>)-(-)-1,1'-Binaphthyl-2,2'-diyl Hydrogen Phosphate CAS RN: 39648-67-4</p>	<p>B1144 100mg 1g</p>  <p>(<i>S</i>)-(+)-1,1'-Binaphthyl-2,2'-diyl Hydrogen Phosphate CAS RN: 35193-64-7</p>	<p>Others</p>	
<p>B1219 100mg</p>  <p>(+)-MBF-OH Dimer CAS RN: 87248-50-8</p>	<p>B1220 100mg</p>  <p>(-)-MBF-OH Dimer CAS RN: 108031-79-4</p>	<p>(S)-5-Allyl-2-oxa-bicyclo[3.3.0]oct-8-ene CAS RN: 1052236-86-8</p>			

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